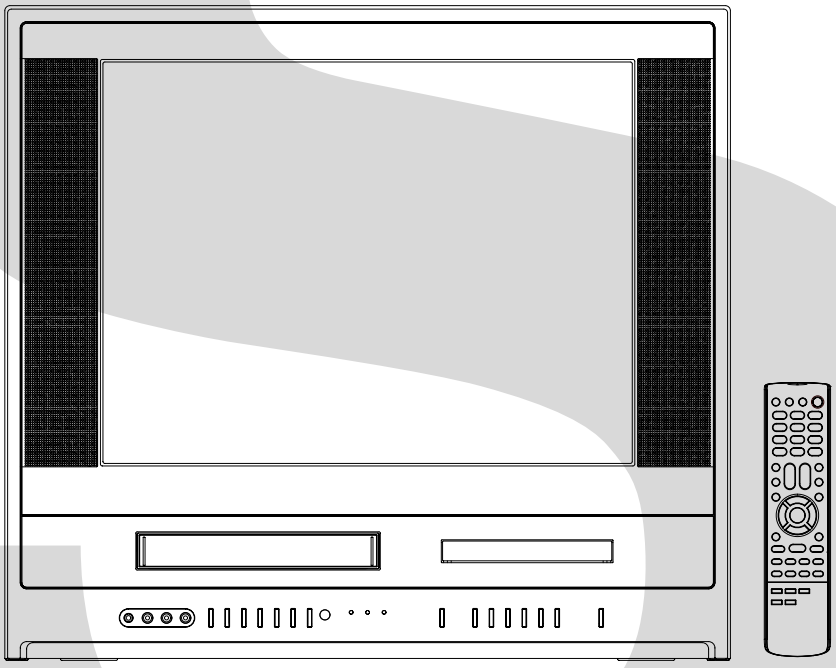
TOSHIBA

FILE NO. 140-200512
(MFR'S VERSION A)

# SERVICE MANUAL

# COLOR TELEVISION/ VIDEO CASSETTE RECORDER/ DVD VIDEO PLAYER

# MW20F11/ MW20F11C



DOCUMENT CREATED IN JAPAN, April, 2005

# CAUTION

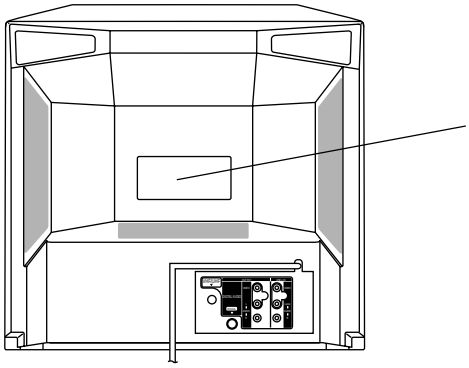
THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

**Location of the required Marking**
The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity.
Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened.
Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

# SERVICING NOTICES ON CHECKING

### 1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

### 2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

### 3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

### 4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

### 5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

### 6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

### 7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

**(INSULATION CHECK PROCEDURE)**

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

**[Note 1]**

If you have not the 500V insulation resistance meter, use a Tester.

**[Note 2]**

External exposure metal: Antenna terminal

# HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

# IMPORTANT SAFEGUARDS

1. **READ INSTRUCTIONS**
   All the safety and operating instructions should be read before the unit is operated.
2. **RETAIN INSTRUCTIONS**
   The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS**
   All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS**
   All operating and use instructions should be followed.
5. **CLEANING**
   Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **ATTACHMENTS**
   Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.
7. **WATER AND MOISTURE**
   Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
8. **ACCESSORIES**
   Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

PORTABLE CART WARNING
(symbol provided by RETAC)

S3125A

**8A.** An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. **VENTILATION**
   Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. **POWER SOURCES**
    This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.
11. **GROUNDING OR POLARIZATION**
    This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
12. **POWER-CORD PROTECTION**
    Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **LIGHTNING**
    To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.
14. **POWER LINES**
    An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.
15. **OVERLOADING**
    Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.
16. **OBJECT AND LIQUID ENTRY**
    Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

**17. OUTDOOR ANTENNA GROUNDING**

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

**18. SERVICING**

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

**19. DAMAGE REQUIRING SERVICE**

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the unit.
c. If the unit has been exposed to rain or water.
d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
e. If the unit has been dropped or the cabinet has been damaged.
f. When the unit exhibits a distinct change in performance, this indicates a need for service.

**20. REPLACEMENT PARTS**

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.
Unauthorized substitutions may result in fire, electric shock or other hazards.

**21. SAFETY CHECK**

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

**22. WALL OR CEILING MOUNTING**

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

**23. HEAT**

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

**24. DISC TRAY**

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

**25. CONNECTING**

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

**26. SOUND VOLUME**

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

**27. SOUND DISTORTION**

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

**28. HEADPHONES**

When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

**29. LASER BEAM**

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

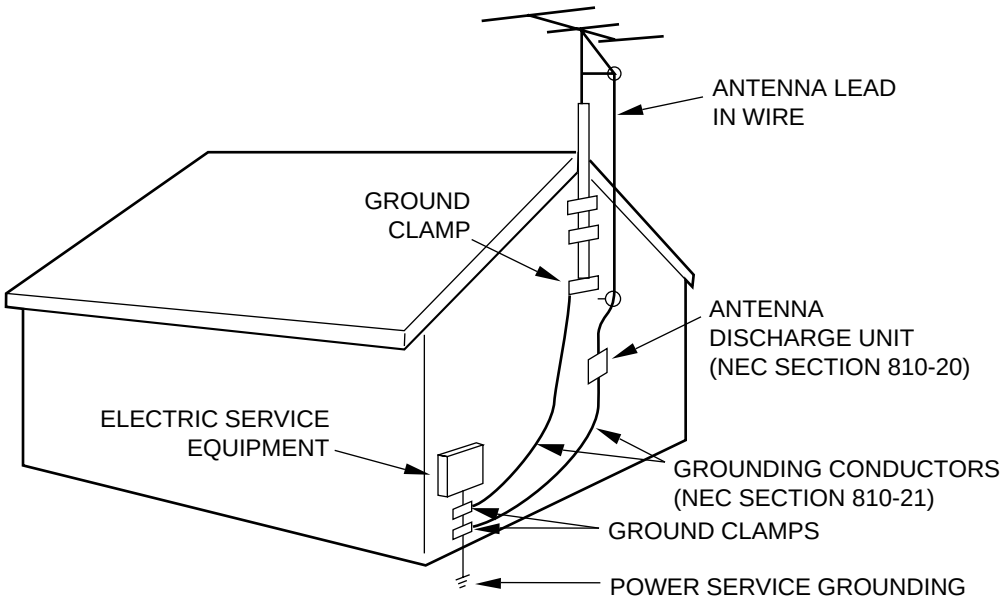
**30. DISC**

Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

**31. NOTE TO CATV SYSTEM INSTALLER**

This reminder is provided to call the CATV system installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



# WHEN REPLACING DVD DECK

**[ When removing the DVD Deck ]**

Before removing Pick Up PCB and DVD PCB connector, short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

**[ When installing the DVD Deck ]**

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

**NOTE**

- Before your operation, please read “PREPARATION OF SERVICING”.
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature: 320 ± 20˚C
  - Soldering time: Within 3 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the draw in equipment over the Pick Up Unit to prevent the Flux smoke from it.

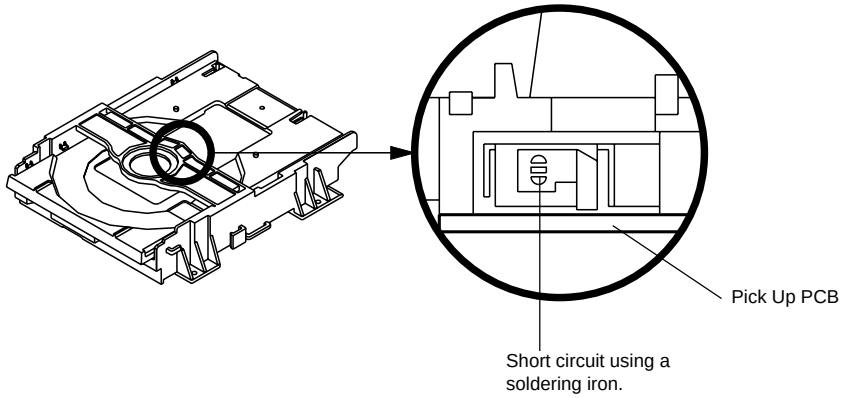



**Fig. 1**

## TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the TV/DVD/VCR block from the main unit as shown in **Fig. 1** below can be seen. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Remove the screw ① of the Deck Chassis and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape. **(Refer to Fig. 2)**
4. Rotate the Clutch Ass'y either direction to wind the Video Tape in the Cassette Case.
5. Repeat steps 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch the tape.

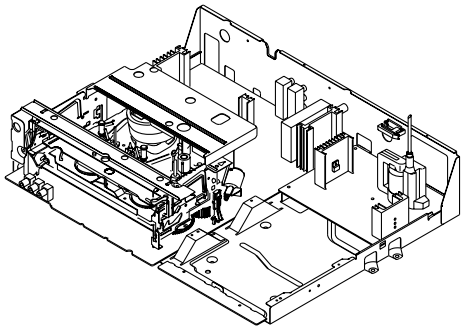


**Fig. 1**

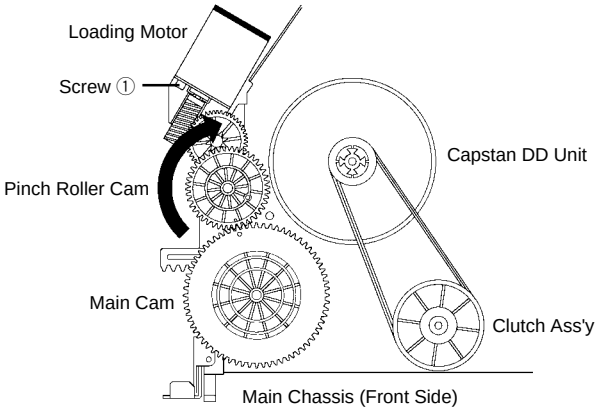



**Fig. 2**

## DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and TV/DVD/VCR Block. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Rotate the Main Gear in the direction of the arrow by hand. **(Refer to Fig. 1)**
3. Manually open the Tray.

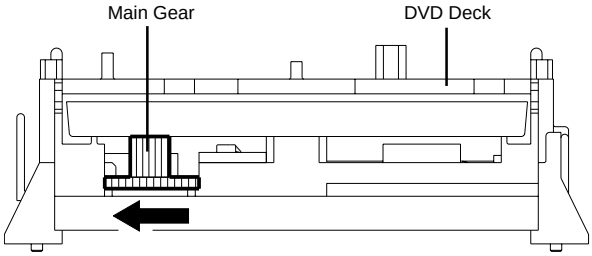



**Fig. 1**

# PARENTAL CONTROL - RATING LEVEL

## 4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Check that 'No disc' is displayed on the screen.
4. Press and hold the 'STOP(DVD)' button on the front panel.
5. Simultaneously press and hold the '7' key on the remote control unit.
6. Hold both keys for more than 3 seconds.
7. The On Screen Display message 'PASSWORD CLEAR' will appear.
8. The 4 digit password has now been cleared.

# TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the 'STOP(DVD)' key on the front panel.
4. Simultaneously press and hold the '9' key on the remote control unit.
5. Hold both keys for more than 3 seconds.
6. Press the OPEN/CLOSE key on the front panel to check the Tray Lock setting.

**NOTE:** No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the 'STOP(DVD)' key on the front panel.
4. Simultaneously press and hold the '9' key on the remote control unit.
5. Hold both keys for more than 3 seconds.
6. The Tray Lock has now been cleared.

**NOTE:** No indications on the screen when the Tray Lock is setting.

It is likely to be going to be changed to the following steps without a previous notice in the future.
If the above is not effective measures, please follow the steps below.

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO SELECT' and '0' key of a remote control unit.
4. The On Screen Display message ' ' will appear.
5. The Tray Lock has now been set up.

**NOTE:** No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

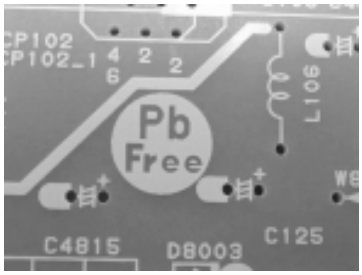
1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO SELECT' and '0' key of a remote control unit.
4. The On Screen Display message ' ' will appear.
5. The Tray Lock has now been cleared.

**NOTE:** No indications on the screen when the Tray Lock is setting.

# ABOUT LEAD FREE SOLDER (PbF)

### Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)




## Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50°F~70°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

### Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

# TABLE OF CONTENTS


**CAUTION** ..... A1-1
**SERVICING NOTICES ON CHECKING** ..... A1-2
**HOW TO ORDER PARTS** ..... A1-2
**IMPORTANT WARNING** ..... A1-3~A1-5
**WHEN REPLACING DVD DECK** ..... A1-6
**TAPE REMOVAL METHOD AT NO POWER SUPPLY** ..... A1-7
**DISC REMOVAL METHOD AT NO POWER SUPPLY** ..... A1-7
**PARENTAL CONTROL RATING LEVEL** ..... A1-8
**TRAY LOCK** ..... A1-8
**ABOUT LEAD FREE SOLDER (PbF)** ..... A1-9
**TABLE OF CONTENTS** ..... A2-1
**GENERAL SPECIFICATIONS** ..... A3-1~A3-16
**DISASSEMBLY INSTRUCTIONS**
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS ..... B1-1~B1-3
2. REMOVAL OF VCR DECK PARTS ..... B2-1~B2-6
3. REMOVAL OF DVD DECK PARTS ..... B3-1~B3-4
4. REMOVAL OF ANODE CAP ..... B4-1
5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC ..... B5-1, B5-2

**KEY TO ABBREVIATIONS** ..... C1-1, C1-2
**SERVICE MODE LIST** ..... C2-1
**PREVENTIVE CHECKS AND SERVICE INTERVALS** ..... C3-1, C3-2
**WHEN REPLACING EEPROM (MEMORY) IC** ..... C4-1
**SERVICING FIXTURES AND TOOLS** ..... D1-1
**PREPARATION FOR SERVICING** ..... D1-1
**MECHANICAL ADJUSTMENTS** ..... D2-1~D2-4
**ELECTRICAL ADJUSTMENTS** ..... D3-1~D3-6
**BLOCK DIAGRAMS**
DVD ..... E-1, E-2
Y/C/AUDIO/HEAD AMP ..... E-3, E-4
MICON ..... E-5, E-6
IN/OUT ..... E-7, E-8
CHROMA/IF ..... E-9, E-10
SOUND AMP/SURROUND ..... E-11, E-12
Hi-Fi/DEMODULATOR ..... E-13, E-14
DIGITAL COMB FILTER ..... E-15, E-16
DVD IN/OUT ..... E-17, E-18
REGULATOR ..... E-19, E-20
TV ..... E-21, E-22

**PRINTED CIRCUIT BOARDS**
DVD ..... F-1, F-2
VCR ..... F-3~F-6
DEFLECTION/CRT/OPERATION ..... F-7, F-8
LOADING MOTOR/SW ..... F-9, F-10

**SCHEMATIC DIAGRAMS**
MPEG/MICON/DSP/RF_AMP ..... G-1, G-2
MEMORY ..... G-3, G-4
MOTOR DRIVE ..... G-5, G-6
AUDIO/VIDEO ..... G-7, G-8
Y/C/AUDIO/HEAD AMP ..... G-9, G-10
MICON ..... G-11, G-12
IN/OUT ..... G-13, G-14
CHROMA/IF ..... G-15, G-16
SOUND AMP/SURROUND ..... G-17, G-18
Hi-Fi/DEMODULATOR ..... G-19, G-20
DIGITAL COMB FILTER ..... G-21, G-22
DVD IN/OUT ..... G-23, G-24
REGULATOR1 ..... G-25, G-26
TV POWER ..... G-27, G-28
DEFLECTION ..... G-29, G-30
CRT/OPERATION ..... G-31, G-32
LOADING MOTOR/SW ..... G-33, G-34

**INTERCONNECTION DIAGRAM** ..... G-35, G-36
**WAVEFORMS** ..... H-1~H-3
**MECHANICAL EXPLODED VIEWS** ..... I1-1~I1-3
**CHASSIS EXPLODED VIEWS** ..... I2-1, I2-2
**DVD DECK EXPLODED VIEWS** ..... I3-1
**MECHANICAL REPLACEMENT PARTS LIST** ..... J1-1~J1-4
**CHASSIS REPLACEMENT PARTS LIST** ..... J2-1
**DVD DECK REPLACEMENT PARTS LIST** ..... J3-1
**ELECTRICAL REPLACEMENT PARTS LIST** ..... J4-1~J4-14

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-1** | **TV System** | CRT | | CRT Size / Visual Size | 20 inch / 508.0mmV |
| | | | | CRT Type | Flat |
| | | | | Magnetic Field BV/BH | +0.45G / 0.18G |
| | | Color System | | | NTSC |
| | | Speaker | | | 2 Speaker |
| | | | | Position | Front |
| | | | | Size | 1.8 x 3.9 Inch |
| | | | | Impedance | 8 ohm |
| | | Sound Output | | MAX | 1.5W + 1.5W |
| | | | | 10%(Typical) | — |
| **G-2** | **VCR System** | System | | | VHS Player / Recorder |
| | | Video System | | | NTSC |
| | | Hi-Fi STEREO | | | Yes |
| | | NTSC PB | | | - |
| | | Deck | | | OVD-7 |
| | | Heads | Video Head | | 4 Heads |
| | | | FM Audio Head | | 2 Heads |
| | | | Audio /Control | | Mono /Yes |
| | | | Erase(Full Track Erase) | | Yes |
| | | Tape Speed | Rec | PAL | - |
| | | | | NTSC | SP/SLP(EP) |
| | | | Play | PAL | - |
| | | | | NTSC | SP/SLP(EP) |
| | | Fast Forward / Rewind Time (Approx.) at 25oC | | | FF:1'48"/REW:1'48" |
| | | | | with Cassette | T-120 |
| | | Forward/Reverse Picture Search | | NTSC or PAL-M | SP/SLP(EP)=3x,5x / 9x,15x |
| | | Frame Advance | | | Yes |
| | | Slow Speed | | | 1/10 |
| **G-3** | **DVD System** | Color System | | | NTSC |
| | | Disc | | | DVD, CD-DA, CD-R/RW, Video CD<br>DVD-R/RW (Video Format Only) |
| | | Disc Diameter | | | 120 mm , 80 mm |
| | | Drive | | | DM3PA |
| | | Search speed | | Fwd | 4 step |
| | | | | Actual | 2-120 times(DVD, VIDEO CD)<br>4-40 times (CD) |
| | | | | Rev | 4 step |
| | | | | Actual | 2-120 times(DVD, VIDEO CD)<br>4-40 times (CD) |
| | | Slow speed | | | Fwd 1/7 - 1/2 times |
| | | | | Actual | -- |
| | | | | | Rev -- |
| | | | | Actual | -- |
| **G-4** | **Tuning System** | Broadcasting System | | | US System M |
| | | Tuner and Receive CH | | System | 1 Tuner |
| | | | | Destination | US(w/CABLE) |
| | | | | CH Coverage | 2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+84 |
| | | Intermediate Frequency | | Picture(FP) | 45.75MHz |
| | | | | Sound(FS) | 41.25MHz |
| | | | | FP-FS | 4.5MHz |
| | | Preset CH | | | No |
| | | Stereo/Dual TV Sound | | | US-Stereo |
| | | Tuner Sound Muting | | | Yes |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-5** | **Signal** | Video Signal | Input Level | | 1 V p-p/75 ohm |
| | | | Output Level | | 1 V p-p/75 ohm |
| | | | S/N Ratio (Weighted) at DVD Mode | | 65dB |
| | | | S/N Ratio (Weighted) at VCR Mode | | 50dB |
| | | | Horizontal Resolution at DVD Mode | | 400 Lines |
| | | | Horizontal Resolution at VCR(SP)Mode | | 220 Lines |
| | | RGB Signal | Output Level | | - |
| | | Audio Signal | Input Level | | -8.0dBm/50k ohm |
| | | VCR | Output Level(0dB=0.775Vrms) | | -8.0dBm/1k ohm |
| | | DVD | Output Level(-20dBFs 0dBFs=2.0Vrms) | | -12.0dBm/1k ohm |
| | | | Digital Output Level | | 0.5 V p-p/75 ohm(DVD) |
| | | | S/N Ratio at DVD (Weighted) | | 90 dB |
| | | | S/N Ratio at VCR (SP)(CCIR Filter:ON) | | 38 dB |
| | | | Harmonic Distortion at DVD Mode | | 0.06% (1kHz) |
| | | | Harmonic Distortion at VCR(SP) Mode | | 1.5% (1kHz) Typical |
| | | | Frequency Response : | | |
| | | | DVD Mode | at DVD | 4Hz - 22kHz |
| | | | | at Video CD | 4Hz - 20kHz |
| | | | | at SVCD | - |
| | | | | at CD | 4Hz - 20kHz |
| | | | VCR Mode | at SP | 100Hz - 10kHz |
| | | | | at LP | - |
| | | | | at SLP | 100Hz - 4kHz |
| | | Hi-Fi Audio Signal | Dynamic Range : More than | | 90 dB |
| | | | Frequency Response : | | 20Hz - 20kHz |
| | | | Wow And Flutter : Less than | | 0.01 %Wrms |
| | | | Channel Separation : More than | | 60 dB |
| | | | Harmonic Distortion : Less than | | 1.0 % |
| **G-6** | **Power** | Power Source | AC | | 120V,60Hz |
| | | | DC | | - |
| | | Power Consumption | | at AC | 110 W at 120 V 60 Hz |
| | | | | at DC | - |
| | | | Stand by (at AC) | | 4 W at 120 V 60 Hz |
| | | | Per Year | | - |
| | | Protector | Power Fuse | | Yes |
| | | | Safety Circuit | | Yes |
| | | | IC Protector(Micro Fuse) | | No |
| | | | Dew Sensor | | No |
| **G-7** | **Regulation** | | Safety | | UL |
| | | | Radiation | | FCC |
| | | | X-Radiation | | DHHS |
| | | | Laser | | DHHS |
| **G-8** | **Temperature** | | Operation | | +5oC ~ +40oC |
| | | | Storage | | -20oC ~ +60oC |
| **G-9** | **Operating Humidity** | | | | Less than 80% RH |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-10** | **On Screen Display (TV/VCR)** | Menu | | | Yes |
| | | Menu | Type | | Icon |
| | | System Setup | | | Yes |
| | | | Clock Set | | Yes |
| | | | On/Off Timer Set | | Yes |
| | | | Auto Clock On/Off | | Yes |
| | | | Standard Time | | Yes |
| | | | Daylight Saving Time | | Yes |
| | | TV Setup | | | Yes |
| | | | Language | | Yes |
| | | | Picture | | Yes |
| | | | Audio | | Yes |
| | | | Picture Preference | | Yes |
| | | Channel Setup | | | Yes |
| | | | TV/CABLE | | Yes |
| | | | Auto CH Memory | | Yes |
| | | | Add/ Delete | | Yes |
| | | V-chip Setup | | | Yes |
| | | Tape Setup | | | Yes |
| | | | Timer Rec Set | | Yes |
| | | | Auto Repeat On/Off | | Yes |
| | | G-CODE(or SHOWVIEW or PLUSCODE)No. Entry | | | No |
| | | Clock / Date | | | Yes |
| | | TV/VCR | | | Yes |
| | | DVD | | | Yes |
| | | CH/AV(LINE) | | | Yes |
| | | Tape Counter(Linear Counter) | | | Yes |
| | | Tape Speed | | | Yes |
| | | Sleep Time | | | Yes |
| | | Stereo/Audio Output | | | Yes |
| | | | Bilingual | | No |
| | | | SAP | | Yes |
| | | Control Level | Volume | | Yes |
| | | | Brightness/Contrast/Sharpness/Color | | Yes |
| | | | Tint | | Yes |
| | | | Bass/Treble/Balance | | Yes |
| | | | Manual Tracking | | Yes |
| | | Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In | | (Symbol Mark) | Yes |
| | | Auto Tracking/Manual Tracking | | | Yes |
| | | Caption / Text | | | Yes |
| | | Index | | | No |
| | | Mute | | | Yes |
| | | Hi-Fi | | | Yes |
| | | Repeat | | | Yes |
| | | Zero Return | | | Yes |
| | | DEW | | | No |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-11 | **On Screen Display (DVD)** | Menu (DVD) | | | Yes |
| | | Menu Type | | | Icon |
| | | Language | | | Yes |
| | | | Menu | | Yes |
| | | | Subtitle | | Yes |
| | | | Audio | | Yes |
| | | | OSD Language(Set up Language) | | No |
| | | Video | | | Yes |
| | | | E.B.L. (Enhanced Black Level) | | No |
| | | | TV Screen Size(4:3) | | Yes |
| | | | OSD Display On/Off | | Yes |
| | | | Picture Mode (Video/Film/Auto) | | Yes |
| | | | JPEG Interval | | No |
| | | Audio | | | Yes |
| | | | DRC (Dynamic Range Control) | | Yes |
| | | | Dialogue (On DRC[TV] / Off DRC[Std]) | | No |
| | | | Surround | | No |
| | | System | | | Yes |
| | | | Disc/Card Slot | | No |
| | | | Password Lock/ Un Lock | | Yes |
| | | | Parental | | Yes |
| | | | Select Files | | No |
| | | | HDMI (480p/1080i/720p) | | No |
| | | | Output | | No |
| | | Open | | | Yes |
| | | Close | | | Yes |
| | | No Disc | | | Yes |
| | | Reading Disc | | | Yes |
| | | Play | | | Yes |
| | | Still/Pause | | | Yes |
| | | Stop | | | Yes |
| | | Prohibit Mark | | | Yes |
| | | PBC | | | Yes |
| | | Step | | | Yes |
| | | Skip(>>\|) | | | Yes |
| | | Skip(\|<<) | | | Yes |
| | | Random | | | Yes (CD, VIDEO CD) |
| | | Repeat | | | Yes |
| | | Slow+ | | | Yes |
| | | Slow- | | | No |
| | | Search+ | | | Yes |
| | | Search- | | | Yes |
| | | Jump | | | Yes |
| | | Resume | | | Yes |
| | | Title No. | | | Yes |
| | | Chapter No. | | | Yes |
| | | Track No. | | | Yes |
| | | Time | | | Yes |
| | | Sub Title No. | | | Yes |
| | | Angle No. | | | Yes |
| | | Vocal On/Off | | | No |
| | | Audio No. | | | Yes |
| | | Audio Stereo L/R | | | Yes (Video CD) |
| | | Zoom | | | Yes |
| | | Marker No. | | | No |
| | | Program Play Back | | | Yes (CD, VIDEO CD ) |
| | | Surround On/Off | | | No |
| | | Screen Saver | | | No |
| | | MP3, WMA, JPEG | | Folder Name | No |
| | | | | File Name | No |
| | | | | File No | No |
| | | | | Time | No |
| | | | | Track No | No |
| G-12 | **OSD Language** | | | | English French Spanish |

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **G-13** | **Clock,Timer and Timer Back-up** | Calendar | | 1990/1/1 ~ 2081/12/31 |
| | | Timer Events | | 8 Program/ 1 Month |
| | | One Touch Recording Max Time | | 6 Hours |
| | | Sleep Timer | Max Time | 120 Min |
| | | | Step | 10 Min |
| | | On/Off Timer | Program(On Timer / Off Timer) | 1 Program |
| | | Auto Shut Off | No Signal | 15 Min |
| | | | No Operation | - Min |
| | | Timer Back-up (at Power Off Mode) | | 5 Sec |
| **G-14** | **Remote Control Unit** | Unit | | RC-KH |
| | | Glow in Dark Remocon | | Yes |
| | | Remocon Format | | TOSHIBA |
| | | Format | | TOSHIBA |
| | | Custom Code | | 40-BFh, 44-BBh, 45-Bah |
| | | Power Source | Voltage(D.C) | 3V |
| | | | UM size x pcs | UM-4 x 2 pcs |
| | | Total Keys | | 49 Key |
| | | Keys | TV/VCR | Yes |
| | | | DVD | Yes |
| | | | Power | Yes |
| | | | 1 | Yes |
| | | | 2 | Yes |
| | | | 3 | Yes |
| | | | 4 | Yes |
| | | | 5 | Yes |
| | | | 6 | Yes |
| | | | 7 | Yes |
| | | | 8 | Yes |
| | | | 9 | Yes |
| | | | 0 | Yes |
| | | | Channel- | Yes |
| | | | Channel+ | Yes |
| | | | Volume- | Yes |
| | | | Volume+ | Yes |
| | | | Display | Yes |
| | | | Sleep | Yes |
| | | | Audio Select | Yes |
| | | | Mute | Yes |
| | | | Channel Return / Skip- | Yes |
| | | | Closed Caption / Skip+ | Yes |
| | | | TIMER REC | Yes |
| | | | Rec/OTR | Yes |
| | | | Slow+ | Yes |
| | | | Play | Yes |
| | | | Stop | Yes |
| | | | REV(Rew) | Yes |
| | | | FF(F. Fwd) | Yes |
| | | | Pause / Still | Yes |
| | | | CM Skip / Jump | Yes |
| | | | Speed / Return | Yes |
| | | | Counter Reset / Angle | Yes |
| | | | Zero Return / Subtitle | Yes |
| | | | Input Select / Zoom | Yes |
| | | | Menu /Setup | Yes |
| | | | Program / Repeat A-B | Yes |
| | | | D.Tracking / Top Menu | Yes |
| | | | Tracking+ / DVD Menu | Yes |
| | | | Tracking- / Play Mode | Yes |
| | | | Cancel | Yes |
| | | | Cursor Up | Yes |
| | | | Cursor Down | Yes |
| | | | Cursor Left | Yes |
| | | | Cursor Right | Yes |
| | | | Enter | Yes |
| | | | Open/Close | Yes |
| | | | Eject | Yes |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-15 | **Features (TV/VCR)** | Auto Head Cleaning | | | Yes |
| | | VIDEO PLUS+(SHOWVIEW,G-CODE) | | | No |
| | | Auto Clock | | | Yes |
| | | Picture Preference | | | Yes |
| | | Auto Setup | | | Yes |
| | | Forward / Reverse Picture Search | | | Yes |
| | | Auto CH Memory | | | Yes |
| | | Surround | | | Yes |
| | | Stable Sound | | | Yes |
| | | Closed Caption | | | Yes |
| | | TV Auto Shut off Function | | | Yes |
| | | End Call | | | No |
| | | Index Search | | | No |
| | | SQPB | | | No |
| | | CABLE | | | Yes |
| | | CM Skip(30sec x 6 Times) | | | Yes |
| | | Comb Filter (2Lines) | | | Yes |
| | | VM Circuit | | | No |
| | | TV Monitor | | | No |
| | | Program Extend | | | No |
| | | Choke Coil | | | No |
| | | Energy Star | | | No |
| | | Protect of FBT Leak Circuit | | | Yes |
| | | Zero Return | | | Yes |
| | | Power On Memory | | | No |
| | | V-chip | USA V-chip | | Yes |
| | | | CANADA V-chip | | No |
| | **Features (DVD)** | Tray Lock | | | Yes |
| | | Auto Stop | | (Pause, and Resume Stop after 5min.) | Yes |
| | | Card Slot Reading (Not secured Data) | | | No |
| | | | | xD-Picture Card | No |
| | | | | Memory Stick | No |
| | | | | Multi Media Card | No |
| | | | | SD Memory Card | No |
| | | | | Compact Flash | No |
| | | | | Micro Drive | No |
| | | | | SmartMedia | No |
| | | Video CD Playback | | | Yes |
| | | SVCD Playback | | | No |
| | | MP3 Playback | | | No |
| | | WMA Playback | | | No |
| | | JPEG Playback | | | No |
| | | Digital Out | | (Dolby Digital) | Yes |
| | | | | (MPEG) | Yes |
| | | | | (PCM) | Yes |
| | | | | (DTS) | Yes |
| | | Down Mix Out | | (Dolby Digital) | Yes |
| | | | | (DTS) | No |
| | | 3D Surround | | | No |
| | | Screen Saver | | | No |
| | | Audio DAC | | | 192kHz / 24bit |
| | | Copy (Disc to Tape) | | | Yes (by Conditioning) |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-16** | **Accessories** | Owner's Manual | | Language | English |
| | | | | w/Guarantee Card | Yes |
| | | Remote Control Unit | | | Yes |
| | | Battery | | | Yes |
| | | | | UM size x pcs | UM-4 x 2 pcs |
| | | | | OEM Brand | No |
| | | Rod Antenna | | | No |
| | | | | Poles | - |
| | | | | Terminal | - |
| | | Loop Antenna | | | No |
| | | | | Terminal | - |
| | | U/V Mixer | | | No |
| | | 300 ohm to 75 ohm Antenna Adapter | | | Yes |
| | | Antenna Change Plug | | | No |
| | | DC Car Cord (Center+) | | | No |
| | | AC Plug Adapter | | | No |
| | | AC Cord | | | No |
| | | AV Cord (2Pin-1Pin) | | | No |
| | | Guarantee Card | | | No |
| | | Registration Card | | | Yes |
| | | ESP Card | | | No |
| | | Warning Sheet | | | No |
| | | Dew/AHC Caution Sheet | | | No |
| | | Quick Set-up Sheet | | | No |
| | | Circuit Diagram | | | No |
| | | Service Facility List | | | No |
| | | Important Safeguard | | | No |
| | | Sheet Information (Return) | | | Yes |
| | | Netflix Card | | | Yes [Until '05 MAR O/R] |
| **G-17** | **Interface** | Switch | Front | Power (Tact) | Yes |
| | | | | Channel Up | Yes |
| | | | | Channel Down | Yes |
| | | | | Volume Up | Yes |
| | | | | Volume Down | Yes |
| | | | | Play (VCR) | Yes |
| | | | | Stop / Eject (VCR) | Yes |
| | | | | F.FWD/Cue (VCR) | Yes |
| | | | | Rew/Rev (VCR) | Yes |
| | | | | REC/OTR (VCR) | Yes |
| | | | | Play (DVD) | Yes |
| | | | | Stop (DVD) | Yes |
| | | | | Skip+ /Search+ (DVD) | Yes |
| | | | | Skip- /Search- (DVD) | Yes |
| | | | | Open/Close (DVD) | Yes |
| | | | | Input Select | No |
| | | | | Main Power SW | No |
| | | Indicator | | Power | Yes(Red) |
| | | | | REC/OTR | Yes(Red) |
| | | | | T-REC | Yes(Red) |
| | | | | TV/VCR | No |
| | | | | DVD | No |
| | | Terminals | Front | Video Input | RCA x 1 |
| | | | | Audio Input | RCA x 2(Stereo) |
| | | | | 4 in 1 Card Slot | No |
| | | | | Compact Flash Card Slot | No |
| | | | | Other Terminal | HeadPhone (Stereo & Mono, 3.5mm) |
| | | | Rear | Video Input | RCA x 1 |
| | | | | Audio Input | RCA x 2(Stereo) |
| | | | | Video Output | RCA x1 |
| | | | | Audio Output | RCA x 2(Stereo) |
| | | | | Digital Audio Output | Coaxial (DVD Only) |
| | | | | VHF/UHF Antenna Input | F Type |
| | | | | AC Inlet | No |
| **G-18** | **Set Size** | | | Approx. W x D x H (mm) | 573 x 481 x 517 |
| **G-19** | **Weight** | | | Net (Approx.) | 27.0kg (59.5lbs) |
| | | | | Gross (Approx.) | 30.5kg (67.3lbs) |

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **G-20** | **Carton** | Master Carton | | No |
| | | | Content | - |
| | | | Material | - |
| | | | Dimensions W x D x H(mm) | - |
| | | | Description of Origin | - |
| | | Gift Box | Material | Double/White |
| | | | Dimensions W x D x H(mm) | 658 x 575 x 625 |
| | | | Description of Origin | Yes |
| | | Drop Test | Natural Dropping At | 1 Corner / 2 Edges / 4 Surfaces |
| | | | Height (cm) | 60(ORION SPEC:31) |
| | | Container Stuffing(40' container) | | 216 Sets |
| **G-21** | **Material** | Cabinet | Front | PS 94V0 DECABROM |
| | | | Rear | PS 94V0 DECABROM |
| | | | Jack Panel | - |
| | | PCB | Non-Halogen Demand | No |
| | | | Eyelet Demand | Yes |
| **G-22** | **Environment** | Environmental standard requirement (by buyer) | | Green procurement of TOSHIBA |
| | | | Pb-free | Phase3(Phase3. |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-1** | **TV System** | CRT | | CRT Size / Visual Size | 20 inch / 508.0mmV |
| | | | | CRT Type | Flat |
| | | | | Magnetic Field BV/BH | +0.45G / 0.18G |
| | | Color System | | | NTSC |
| | | Speaker | | | 2 Speaker |
| | | | | Position | Front |
| | | | | Size | 1.8 x 3.9 Inch |
| | | | | Impedance | 8 ohm |
| | | Sound Output | | MAX | 1.5W + 1.5W |
| | | | | 10%(Typical) | — |
| **G-2** | **VCR System** | System | | | VHS Player / Recorder |
| | | Video System | | | NTSC |
| | | Hi-Fi STEREO | | | Yes |
| | | NTSC PB | | | - |
| | | Deck | | | OVD-7 |
| | | Heads | Video Head | | 4 Heads |
| | | | FM Audio Head | | 2 Heads |
| | | | Audio /Control | | Mono /Yes |
| | | | Erase(Full Track Erase) | | Yes |
| | | Tape Speed | Rec | PAL | - |
| | | | | NTSC | SP/SLP(EP) |
| | | | Play | PAL | - |
| | | | | NTSC | SP/SLP(EP) |
| | | Fast Forward / Rewind Time (Approx.) at 25oC | | | FF:1'48"/REW:1'48" |
| | | | | with Cassette | T-120 |
| | | Forward/Reverse Picture Search | | NTSC or PAL-M | SP/SLP(EP)=3x,5x / 9x,15x |
| | | Frame Advance | | | Yes |
| | | Slow Speed | | | 1/10 |
| **G-3** | **DVD System** | Color System | | | NTSC |
| | | Disc | | | DVD, CD-DA, CD-R/RW, Video CD<br>DVD-R/RW (Video Format Only) |
| | | Disc Diameter | | | 120 mm , 80 mm |
| | | Drive | | | DM3PA |
| | | Search speed | | Fwd | 4 step |
| | | | | Actual | 2-120 times(DVD, VIDEO CD)<br>4-40 times (CD) |
| | | | | Rev | 4 step |
| | | | | Actual | 2-120 times(DVD, VIDEO CD)<br>4-40 times (CD) |
| | | Slow speed | | | Fwd 1/7 - 1/2 times |
| | | | | Actual | -- |
| | | | | | Rev -- |
| | | | | Actual | -- |
| **G-4** | **Tuning System** | Broadcasting System | | | US System M |
| | | Tuner and Receive CH | | System | 1 Tuner |
| | | | | Destination | US(w/CABLE) |
| | | | | CH Coverage | 2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+84 |
| | | Intermediate Frequency | | Picture(FP) | 45.75MHz |
| | | | | Sound(FS) | 41.25MHz |
| | | | | FP-FS | 4.5MHz |
| | | Preset CH | | | No |
| | | Stereo/Dual TV Sound | | | US-Stereo |
| | | Tuner Sound Muting | | | Yes |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-5** | **Signal** | Video Signal | Input Level | | 1 V p-p/75 ohm |
| | | | Output Level | | 1 V p-p/75 ohm |
| | | | S/N Ratio (Weighted) at DVD Mode | | 65dB |
| | | | S/N Ratio (Weighted) at VCR Mode | | 50dB |
| | | | Horizontal Resolution at DVD Mode | | 400 Lines |
| | | | Horizontal Resolution at VCR(SP)Mode | | 220 Lines |
| | | RGB Signal | Output Level | | - |
| | | Audio Signal | Input Level | | -8.0dBm/50k ohm |
| | | VCR | Output Level(0dB=0.775Vrms) | | -8.0dBm/1k ohm |
| | | DVD | Output Level(-20dBFs 0dBFs=2.0Vrms) | | -12.0dBm/1k ohm |
| | | | Digital Output Level | | 0.5 V p-p/75 ohm(DVD) |
| | | | S/N Ratio at DVD (Weighted) | | 90 dB |
| | | | S/N Ratio at VCR (SP)(CCIR Filter:ON) | | 38 dB |
| | | | Harmonic Distortion at DVD Mode | | 0.06% (1kHz) |
| | | | Harmonic Distortion at VCR(SP) Mode | | 1.5% (1kHz) Typical |
| | | | Frequency Response : | | |
| | | | DVD Mode | at DVD | 4Hz - 22kHz |
| | | | | at Video CD | 4Hz - 20kHz |
| | | | | at SVCD | - |
| | | | | at CD | 4Hz - 20kHz |
| | | | VCR Mode | at SP | 100Hz - 10kHz |
| | | | | at LP | - |
| | | | | at SLP | 100Hz - 4kHz |
| | | Hi-Fi Audio Signal | Dynamic Range : More than | | 90 dB |
| | | | Frequency Response : | | 20Hz - 20kHz |
| | | | Wow And Flutter : Less than | | 0.01 %Wrms |
| | | | Channel Separation : More than | | 60 dB |
| | | | Harmonic Distortion : Less than | | 1.0 % |
| **G-6** | **Power** | Power Source | AC | | 120V,60Hz |
| | | | DC | | - |
| | | Power Consumption | | at AC | 110 W at 120 V 60 Hz |
| | | | | at DC | - |
| | | | Stand by (at AC) | | 4 W at 120 V 60 Hz |
| | | | Per Year | | - |
| | | Protector | Power Fuse | | Yes |
| | | | Safety Circuit | | Yes |
| | | | IC Protector(Micro Fuse) | | No |
| | | | Dew Sensor | | No |
| **G-7** | **Regulation** | | Safety | | CSA |
| | | | Radiation | | IC |
| | | | X-Radiation | | HWC |
| | | | Laser | | DHHS |
| **G-8** | **Temperature** | | Operation | | +5oC ~ +40oC |
| | | | Storage | | -20oC ~ +60oC |
| **G-9** | **Operating Humidity** | | | | Less than 80% RH |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-10 | On Screen Display (TV/VCR) | Menu | | Yes | |
| | | Menu | Type | Icon | |
| | | System Setup | | Yes | |
| | | | Clock Set | Yes | |
| | | | On/Off Timer Set | Yes | |
| | | | Auto Clock On/Off | Yes | |
| | | | Standard Time | Yes | |
| | | | Daylight Saving Time | Yes | |
| | | TV Setup | | Yes | |
| | | | Language | Yes | |
| | | | Picture | Yes | |
| | | | Audio | Yes | |
| | | | Picture Preference | Yes | |
| | | Channel Setup | | Yes | |
| | | | TV/CABLE | Yes | |
| | | | Auto CH Memory | Yes | |
| | | | Add/ Delete | Yes | |
| | | V-chip Setup | | | No |
| | | Tape Setup | | Yes | |
| | | | Timer Rec Set | Yes | |
| | | | Auto Repeat On/Off | Yes | |
| | | G-CODE(or SHOWVIEW or PLUSCODE)No. Entry | | | No |
| | | Clock / Date | | Yes | |
| | | TV/VCR | | Yes | |
| | | DVD | | Yes | |
| | | CH/AV(LINE) | | Yes | |
| | | Tape Counter(Linear Counter) | | Yes | |
| | | Tape Speed | | Yes | |
| | | Sleep Time | | Yes | |
| | | Stereo/Audio Output | | Yes | |
| | | | Bilingual | | No |
| | | | SAP | Yes | |
| | | Control Level | Volume | Yes | |
| | | | Brightness/Contrast/Sharpness/Color | Yes | |
| | | | Tint | Yes | |
| | | | Bass/Treble/Balance | Yes | |
| | | | Manual Tracking | Yes | |
| | | Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark) | | Yes | |
| | | Auto Tracking/Manual Tracking | | Yes | |
| | | Caption / Text | | Yes | |
| | | Index | | | No |
| | | Mute | | Yes | |
| | | Hi-Fi | | Yes | |
| | | Repeat | | Yes | |
| | | Zero Return | | Yes | |
| | | DEW | | | No |

# GENERAL SPECIFICATIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| G-11 | **On Screen Display (DVD)** | Menu (DVD) | | | Yes | |
| | | | Menu Type | | Icon | |
| | | | Language | | Yes | |
| | | | | Menu | Yes | |
| | | | | Subtitle | Yes | |
| | | | | Audio | Yes | |
| | | | | OSD Language(Set up Language) | | No |
| | | | Video | | Yes | |
| | | | | E.B.L. (Enhanced Black Level) | | No |
| | | | | TV Screen Size(4:3) | Yes | |
| | | | | OSD Display On/Off | Yes | |
| | | | | Picture Mode (Video/Film/Auto) | Yes | |
| | | | | JPEG Interval | Yes | |
| | | | Audio | | Yes | |
| | | | | DRC (Dynamic Range Control) | Yes | |
| | | | | Dialogue (On DRC[TV] / Off DRC[Std]) | | No |
| | | | | Surround | | No |
| | | | System | | Yes | |
| | | | | Disc/Card Slot | | No |
| | | | | Password Lock/ Un Lock | Yes | |
| | | | | Parental | Yes | |
| | | | | Select Files | Yes | |
| | | | | HDMI (480p/1080i/720p) | | No |
| | | | | Output | | No |
| | | | Open | | Yes | |
| | | | Close | | Yes | |
| | | | No Disc | | Yes | |
| | | | Reading Disc | | Yes | |
| | | | Play | | Yes | |
| | | | Still/Pause | | Yes | |
| | | | Stop | | Yes | |
| | | | Prohibit Mark | | Yes | |
| | | | PBC | | Yes | |
| | | | Step | | Yes | |
| | | | Skip(>>\|) | | Yes | |
| | | | Skip(\|<<) | | Yes | |
| | | | Random | | Yes | (CD, VIDEO CD, MP3, WMA, JPEG ) |
| | | | Repeat | | Yes | |
| | | | Slow+ | | Yes | |
| | | | Slow- | | | No |
| | | | Search+ | | Yes | |
| | | | Search- | | Yes | |
| | | | Jump | | Yes | |
| | | | Resume | | Yes | |
| | | | Title No. | | Yes | |
| | | | Chapter No. | | Yes | |
| | | | Track No. | | Yes | |
| | | | Time | | Yes | |
| | | | Sub Title No. | | Yes | |
| | | | Angle No. | | Yes | |
| | | | Vocal On/Off | | | No |
| | | | Audio No. | | Yes | |
| | | | Audio Stereo L/R | | Yes | (Video CD) |
| | | | Zoom | | Yes | |
| | | | Marker No. | | | No |
| | | | Program Play Back | | Yes | (CD, VIDEO CD, MP3, WMA, JPEG ) |
| | | | Surround On/Off | | | No |
| | | | Screen Saver | | | No |
| | | | MP3, WMA, JPEG | Folder Name | Yes | |
| | | | | File Name | Yes | |
| | | | | File No | Yes | |
| | | | | Time | Yes | (MP3, WMA Only) |
| | | | | Track No | Yes | |
| G-12 | **OSD Language** | | | | English French Spanish | |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-13** | **Clock,Timer and Timer Back-up** | Calendar | | 1990/1/1 ~ 2081/12/31 | |
| | | Timer Events | | 8 Program/ 1 Month | |
| | | One Touch Recording Max Time | | 6 Hours | |
| | | Sleep Timer | Max Time | 120 | Min |
| | | | Step | 10 | Min |
| | | On/Off Timer | Program(On Timer / Off Timer) | 1 | Program |
| | | Auto Shut Off | No Signal | 15 | Min |
| | | | No Operation | - | Min |
| | | Timer Back-up (at Power Off Mode) | | 5 | Sec |
| **G-14** | **Remote Control Unit** | Unit | | RC-KH | |
| | | Glow in Dark Remocon | | Yes | |
| | | Remocon Format | | TOSHIBA | |
| | | Format | | TOSHIBA | |
| | | Custom Code | | 40-BFh, 44-BBh, 45-Bah | |
| | | Power Source | Voltage(D.C) | 3V | |
| | | | UM size x pcs | UM-4 x 2 pcs | |
| | | Total Keys | | 49 | Key |
| | | Keys | TV/VCR | Yes | |
| | | | DVD | Yes | |
| | | | Power | Yes | |
| | | | 1 | Yes | |
| | | | 2 | Yes | |
| | | | 3 | Yes | |
| | | | 4 | Yes | |
| | | | 5 | Yes | |
| | | | 6 | Yes | |
| | | | 7 | Yes | |
| | | | 8 | Yes | |
| | | | 9 | Yes | |
| | | | 0 | Yes | |
| | | | Channel- | Yes | |
| | | | Channel+ | Yes | |
| | | | Volume- | Yes | |
| | | | Volume+ | Yes | |
| | | | Display | Yes | |
| | | | Sleep | Yes | |
| | | | Audio Select | Yes | |
| | | | Mute | Yes | |
| | | | Channel Return / Skip- | Yes | |
| | | | Closed Caption / Skip+ | Yes | |
| | | | TIMER REC | Yes | |
| | | | Rec/OTR | Yes | |
| | | | Slow+ | Yes | |
| | | | Play | Yes | |
| | | | Stop | Yes | |
| | | | REV(Rew) | Yes | |
| | | | FF(F. Fwd) | Yes | |
| | | | Pause / Still | Yes | |
| | | | CM Skip / Jump | Yes | |
| | | | Speed / Return | Yes | |
| | | | Counter Reset / Angle | Yes | |
| | | | Zero Return / Subtitle | Yes | |
| | | | Input Select / Zoom | Yes | |
| | | | Menu /Setup | Yes | |
| | | | Program / Repeat A-B | Yes | |
| | | | D.Tracking / Top Menu | Yes | |
| | | | Tracking+ / DVD Menu | Yes | |
| | | | Tracking- / Play Mode | Yes | |
| | | | Cancel | Yes | |
| | | | Cursor Up | Yes | |
| | | | Cursor Down | Yes | |
| | | | Cursor Left | Yes | |
| | | | Cursor Right | Yes | |
| | | | Enter | Yes | |
| | | | Open/Close | Yes | |
| | | | Eject | Yes | |

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| G-15 | Features (TV/VCR) | Auto Head Cleaning | | Yes |
| | | VIDEO PLUS+(SHOWVIEW,G-CODE) | | No |
| | | Auto Clock | | Yes |
| | | Picture Preference | | Yes |
| | | Auto Setup | | Yes |
| | | Forward / Reverse Picture Search | | Yes |
| | | Auto CH Memory | | Yes |
| | | Surround | | Yes |
| | | Stable Sound | | Yes |
| | | Closed Caption | | Yes |
| | | TV Auto Shut off Function | | Yes |
| | | End Call | | No |
| | | Index Search | | No |
| | | SQPB | | No |
| | | CABLE | | Yes |
| | | CM Skip(30sec x 6 Times) | | Yes |
| | | Comb Filter (2Lines) | | Yes |
| | | VM Circuit | | No |
| | | TV Monitor | | No |
| | | Program Extend | | No |
| | | Choke Coil | | No |
| | | Energy Star | | No |
| | | Protect of FBT Leak Circuit | | Yes |
| | | Zero Return | | Yes |
| | | Power On Memory | | No |
| | | V-chip USA V-chip | | No |
| | | CANADA V-chip | | No |
| | Features (DVD) | Tray Lock | | Yes |
| | | Auto Stop | (Pause, and Resume Stop after 5min.) | Yes |
| | | Card Slot Reading (Not secured Data) | | No |
| | | | xD-Picture Card | No |
| | | | Memory Stick | No |
| | | | Multi Media Card | No |
| | | | SD Memory Card | No |
| | | | Compact Flash | No |
| | | | Micro Drive | No |
| | | | SmartMedia | No |
| | | Video CD Playback | | Yes |
| | | SVCD Playback | | No |
| | | MP3 Playback | | Yes |
| | | WMA Playback | | Yes |
| | | JPEG Playback | | Yes |
| | | Digital Out | (Dolby Digital) | Yes |
| | | | (MPEG) | Yes |
| | | | (PCM) | Yes |
| | | | (DTS) | Yes |
| | | Down Mix Out | (Dolby Digital) | Yes |
| | | | (DTS) | No |
| | | 3D Surround | | No |
| | | Screen Saver | | No |
| | | Audio DAC | | 192kHz / 24bit |
| | | Copy (Disc to Tape) | | Yes (by Conditioning) |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-16** | **Accessories** | Owner's Manual | | Language | English / French |
| | | | | w/Guarantee Card | Yes |
| | | Remote Control Unit | | | Yes |
| | | Battery | | | Yes |
| | | | | UM size x pcs | UM-4 x 2 pcs |
| | | | | OEM Brand | No |
| | | Rod Antenna | | | No |
| | | | | Poles | - |
| | | | | Terminal | - |
| | | Loop Antenna | | | No |
| | | | | Terminal | - |
| | | U/V Mixer | | | No |
| | | 300 ohm to 75 ohm Antenna Adapter | | | Yes |
| | | Antenna Change Plug | | | No |
| | | DC Car Cord (Center+) | | | No |
| | | AC Plug Adapter | | | No |
| | | AC Cord | | | No |
| | | AV Cord (2Pin-1Pin) | | | No |
| | | Guarantee Card | | | No |
| | | Registration Card | | | No |
| | | ESP Card | | | No |
| | | Warning Sheet | | | No |
| | | Dew/AHC Caution Sheet | | | No |
| | | Quick Set-up Sheet | | | No |
| | | Circuit Diagram | | | No |
| | | Service Facility List | | | No |
| | | Important Safeguard | | | No |
| | | Sheet Information (Return) | | | Yes |
| | | Netflix Card | | | No |
| **G-17** | **Interface** | Switch | Front | Power (Tact) | Yes |
| | | | | Channel Up | Yes |
| | | | | Channel Down | Yes |
| | | | | Volume Up | Yes |
| | | | | Volume Down | Yes |
| | | | | Play (VCR) | Yes |
| | | | | Stop / Eject (VCR) | Yes |
| | | | | F.FWD/Cue (VCR) | Yes |
| | | | | Rew/Rev (VCR) | Yes |
| | | | | REC/OTR (VCR) | Yes |
| | | | | Play (DVD) | Yes |
| | | | | Stop (DVD) | Yes |
| | | | | Skip+ /Search+ (DVD) | Yes |
| | | | | Skip- /Search- (DVD) | Yes |
| | | | | Open/Close (DVD) | Yes |
| | | | | Input Select | No |
| | | | | Main Power SW | No |
| | | Indicator | | Power | Yes(Red) |
| | | | | REC/OTR | Yes(Red) |
| | | | | T-REC | Yes(Red) |
| | | | | TV/VCR | No |
| | | | | DVD | No |
| | | Terminals | Front | Video Input | RCA x 1 |
| | | | | Audio Input | RCA x 2(Stereo) |
| | | | | 4 in 1 Card Slot | No |
| | | | | Compact Flash Card Slot | No |
| | | | | Other Terminal | HeadPhone (Stereo & Mono, 3.5mm) |
| | | | Rear | Video Input | RCA x 1 |
| | | | | Audio Input | RCA x 2(Stereo) |
| | | | | Video Output | RCA x1 |
| | | | | Audio Output | RCA x 2(Stereo) |
| | | | | Digital Audio Output | Coaxial (DVD Only) |
| | | | | VHF/UHF Antenna Input | F Type |
| | | | | AC Inlet | No |
| **G-18** | **Set Size** | | | Approx. W x D x H (mm) | 573 x 481 x 517 |
| **G-19** | **Weight** | | | Net (Approx.) | 27.0kg (59.5lbs) |
| | | | | Gross (Approx.) | 30.5kg (67.3lbs) |

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **G-20** | **Carton** | Master Carton | | No |
| | | | Content | - |
| | | | Material | - |
| | | | Dimensions W x D x H(mm) | - |
| | | | Description of Origin | - |
| | | Gift Box | Material | Double/White |
| | | | Dimensions W x D x H(mm) | 658 x 575 x 625 |
| | | | Description of Origin | Yes |
| | | Drop Test | Natural Dropping At | 1 Corner / 2 Edges / 4 Surfaces |
| | | | Height (cm) | 60(ORION SPEC:31) |
| | | Container Stuffing(40' container) | | 216 Sets |
| **G-21** | **Material** | Cabinet | Front | PS 94V0 DECABROM |
| | | | Rear | PS 94V0 DECABROM |
| | | | Jack Panel | - |
| | | PCB | Non-Halogen Demand | No |
| | | | Eyelet Demand | Yes |
| **G-22** | **Environment** | Environmental standard requirement (by buyer) | | Green procurement of TOSHIBA |
| | | | Pb-free | Phase3(Phase3 |

# DISASSEMBLY INSTRUCTIONS

## 1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

### 1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 6 screws ①.
2. Remove the 2 screws ②.
3. Remove the Back Cabinet in the direction of arrow.

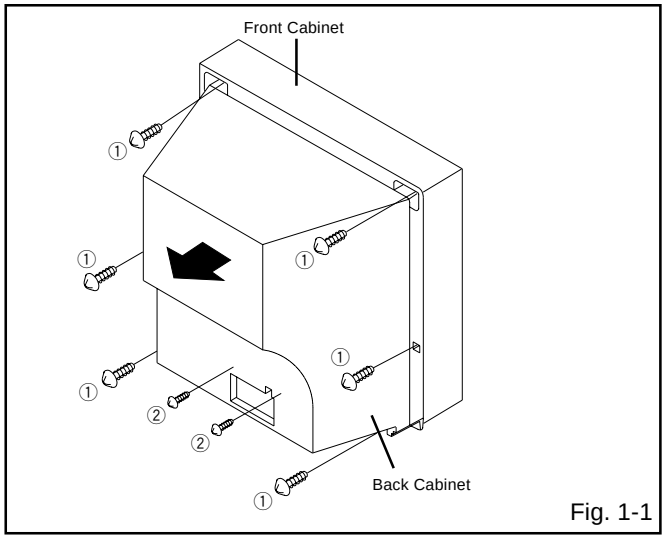


Fig. 1-1

### 1-2: CRT PCB (Refer to Fig. 1-2)

**CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.**

1. Remove the Anode Cap.
   (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
   **(CP603B, CP803 and CP805)**.
3. Remove the CRT PCB in the direction of arrow.

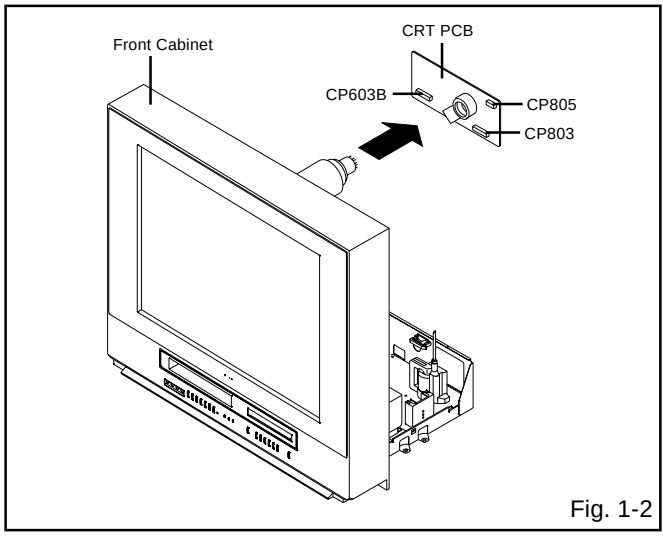


Fig. 1-2

### 1-3: TV/DVD/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   **(CP303, CP404 and CP1704)**.
3. Remove the TV/DVD/VCR Block in the direction of arrow.

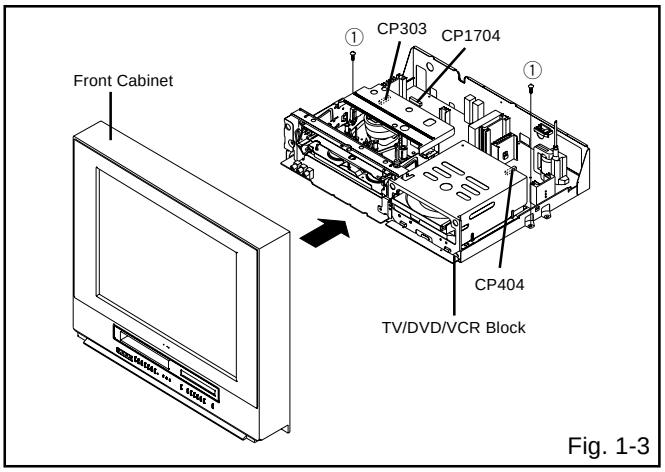


Fig. 1-3

### 1-4: VCR DECK (Refer to Fig. 1-4)

**NOTE**

Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Remove the 2 screws ①.
2. Remove the VCR Top.
3. Move the Cassette Holder Ass'y to the back side.
4. Remove the 3 screws ②.
5. Remove the 2 screws ③.
6. Remove the Deck Shield Cover.
7. Remove the screw ④.
8. Remove the FE Head.
9. Disconnect the following connectors:
   **(CP101, CP4501 and CP4502)**.
10. Remove the VCR Deck in the direction of arrow.

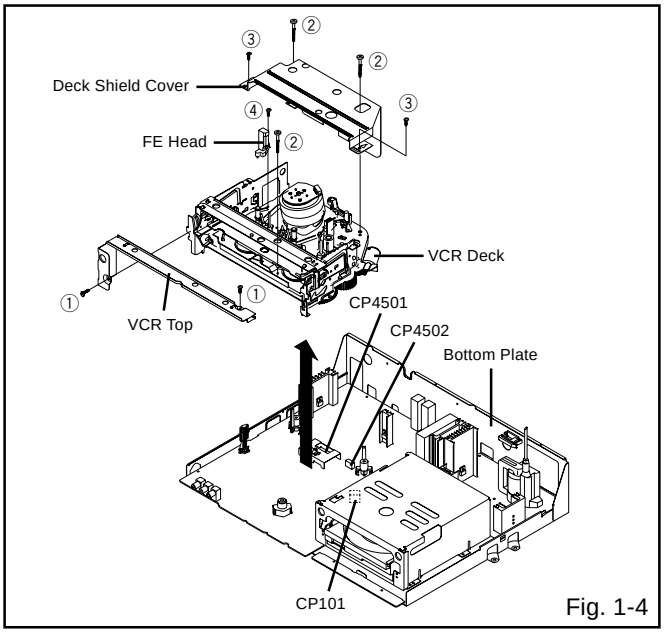


Fig. 1-4

# DISASSEMBLY INSTRUCTIONS

**1-5: VCR PCB (Refer to Fig. 1-5)**

1. Remove the 6 screws ①.
2. Remove the screw ②.
3. Remove the AV Jack Shield.
4. Disconnect the following connectors:
   **(CP001, CP602B, CP604, CP2201, CP8001 and CP8002)**.
5. Remove the VCR PCB in the direction of arrow.

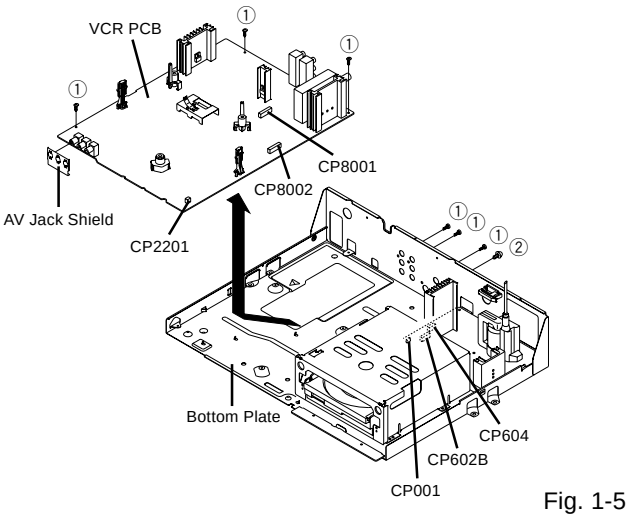


Fig. 1-5

**1-6: DVD BLOCK/OPERATION PCB (Refer to Fig. 1-6)**

1. Remove the 4 screws ①.
2. Remove the DVD Block in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Remove the Operation PCB in the direction of arrow (B).

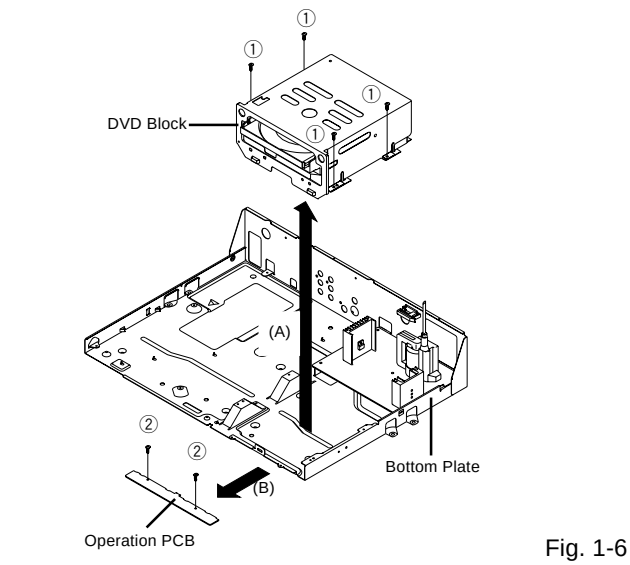


Fig. 1-6

**1-7: DVD PCB/DVD DECK (Refer to Fig. 1-7)**

1. Short circuit the position shown in **Fig. 1-7** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Remove the 2 screws ①.
3. Remove the DVD Top in the direction of arrow (A).
4. Remove the 4 screws ②.
5. Remove the DVD Deck in the direction of arrow (B).
6. Disconnect the following connectors:
   **(CP2601, CP2602 and CP2603)**.
7. Remove the 2 screws ③.
8. Remove the DVD PCB in the direction of arrow (C).

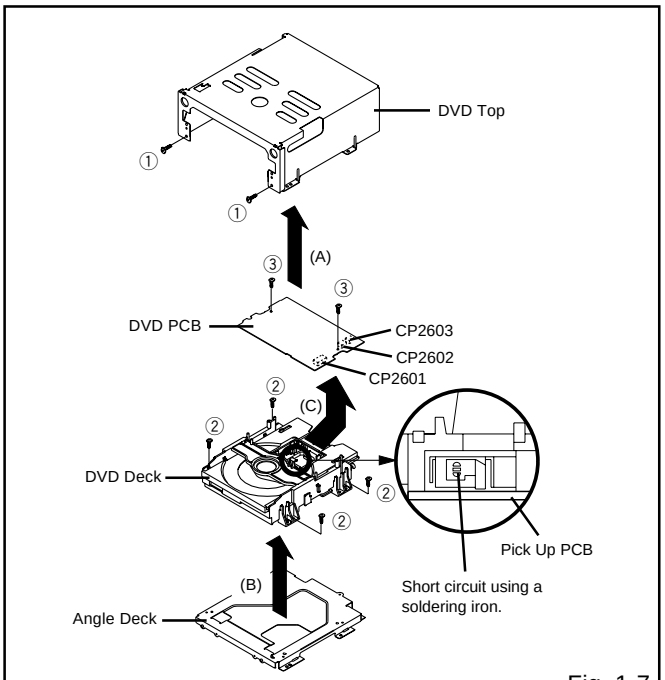


Fig. 1-7

**NOTE**

1. Before your operation, please read “PREPARATION OF SERVICING”.
2. Use the Lead Free solder.
3. Manual soldering conditions
   - Soldering temperature: 320 ± 20˚C
   - Soldering time: Within 3 seconds
   - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

# DISASSEMBLY INSTRUCTIONS

**1-8: DEFLECTION PCB (Refer to Fig. 1-8)**

1. Remove the 2 screws ①.
2. Remove the 3 screws ②.
3. Remove the Deflection PCB in the direction of arrow.

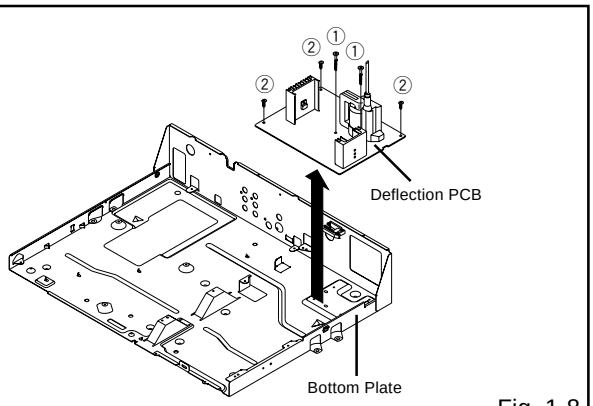



Fig. 1-8

# DISASSEMBLY INSTRUCTIONS

## 2. REMOVAL OF VCR DECK PARTS

### 2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

**NOTE**

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

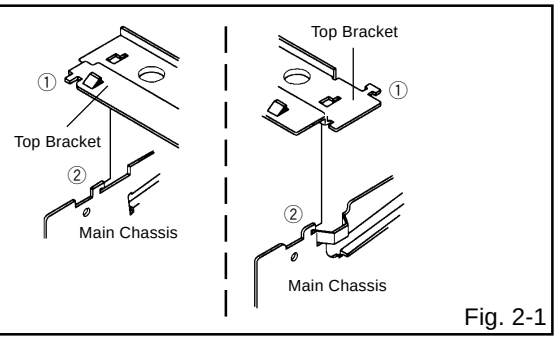



Fig. 2-1

### 2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

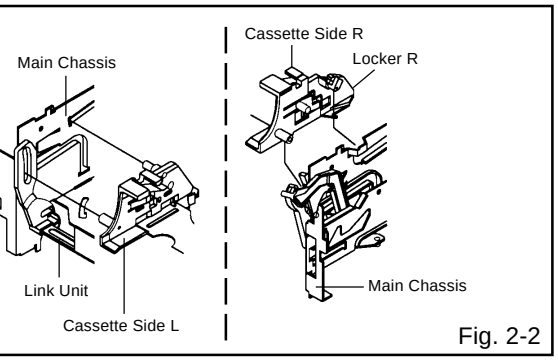



Fig. 2-2

### 2-3: LINK UNIT (Refer to Fig. 2-3)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

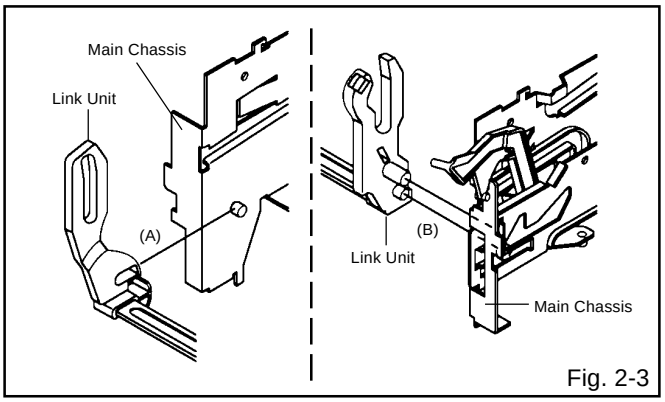



Fig. 2-3

### 2-4: LINK LEVER/FLAP LEVER/BOT COVER (Refer to Fig. 2-4)

1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.

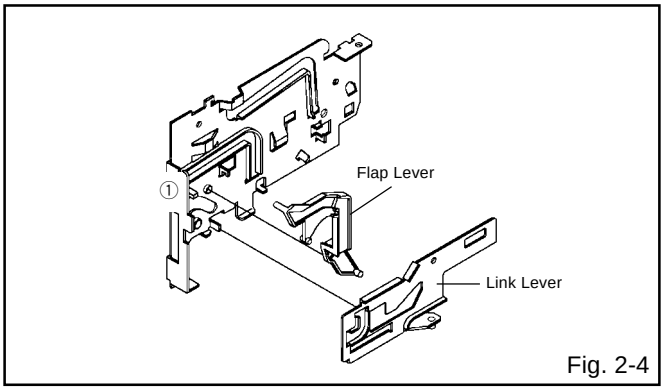



Fig. 2-4

# DISASSEMBLY INSTRUCTIONS

### 2-5: LOADING MOTOR/WORM (Refer to Fig. 2-5-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

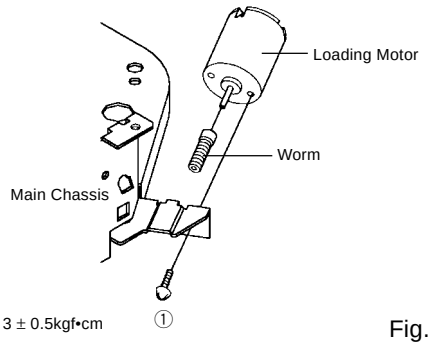


Fig. 2-5-A

**NOTE**

1. In case of the Worm installation, check if the value of the Fig. 2-5-B is correct.
2. In case of the Loading Motor installation, slacken the wire as shown Fig. 2-5-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-5-D.

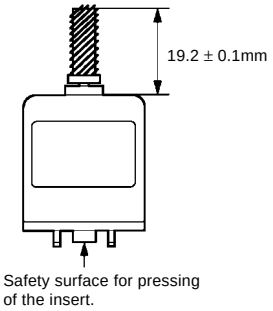


Fig. 2-5-B

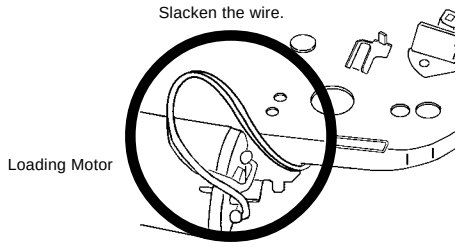


Fig. 2-5-C

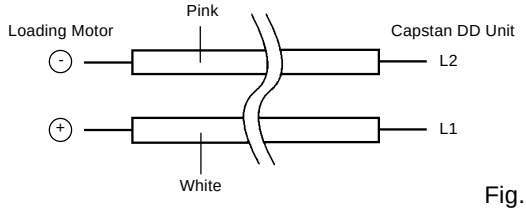


Fig. 2-5-D

### 2-6: TENSION ASS'Y (Refer to Fig. 2-6-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-6-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

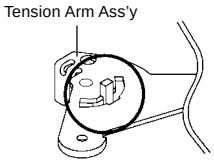


Fig. 2-6-A

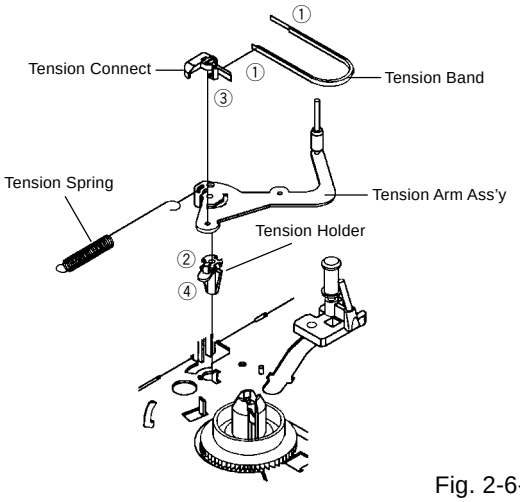


Fig. 2-6-B

**NOTE**

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-6-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-6-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-6-E.

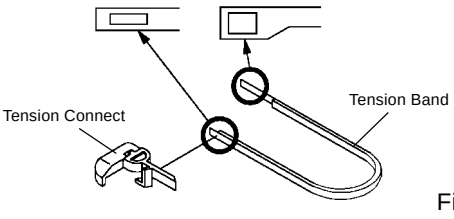


Fig. 2-6-C

# DISASSEMBLY INSTRUCTIONS

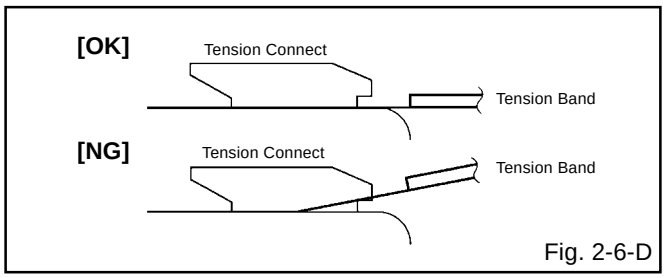


Fig. 2-6-D

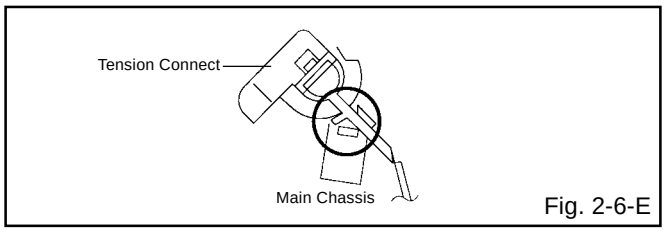


Fig. 2-6-E

**2-7: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-7-A)**

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

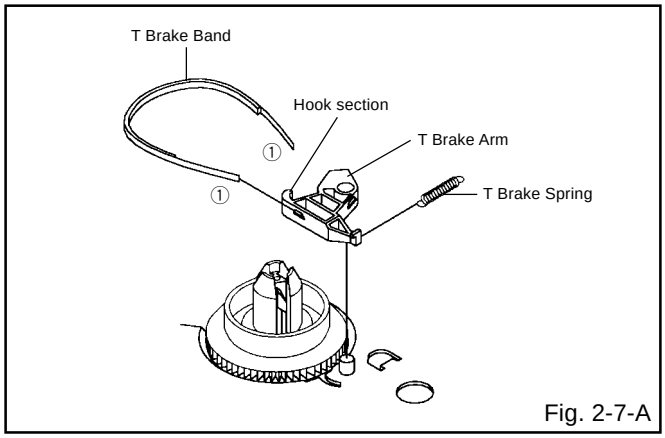


Fig. 2-7-A

**NOTE**

1. In case of the T Brake Band installation, install correctly as Fig. 2-7-B.

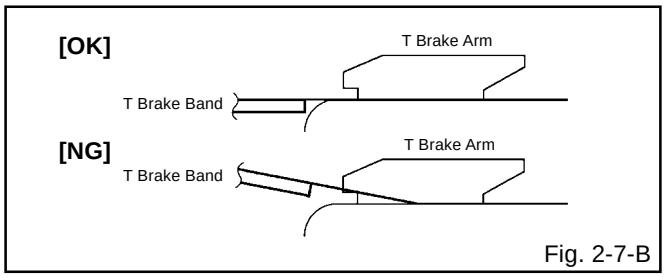


Fig. 2-7-B

**2-8: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-8-A)**

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

**NOTE**

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-8-A)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it. (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

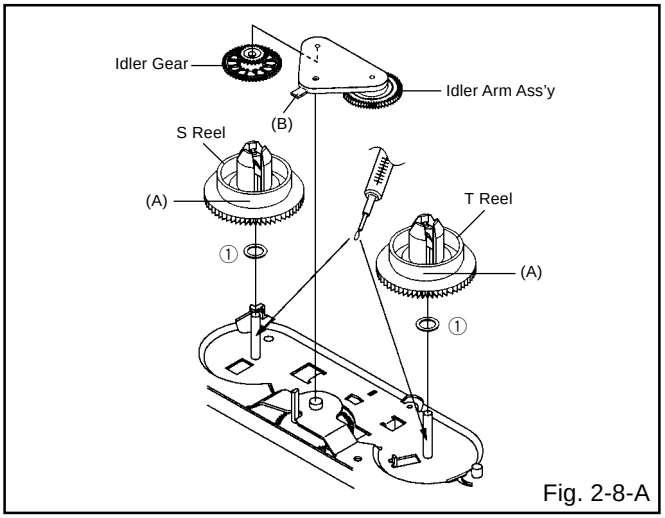


Fig. 2-8-A

**NOTE**

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-8-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-8-C. And also set it so that the section "B" of Fig. 2-8-A is placed under the Main Chassis tab.

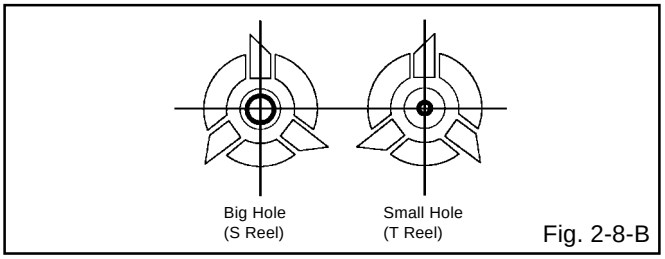


Fig. 2-8-B

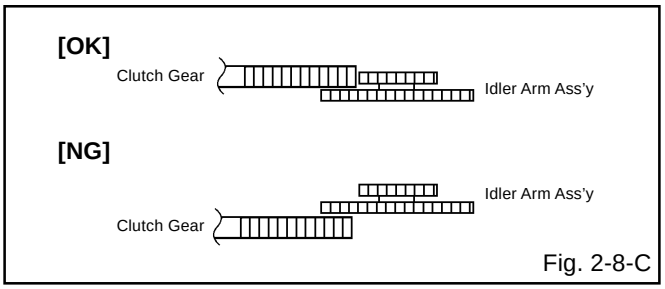


Fig. 2-8-C

# DISASSEMBLY INSTRUCTIONS

### 2-9: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASS'Y (Refer to Fig. 2-9-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.

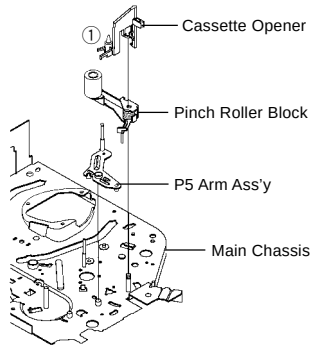



Fig. 2-9-A

**NOTE**

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-9-B.

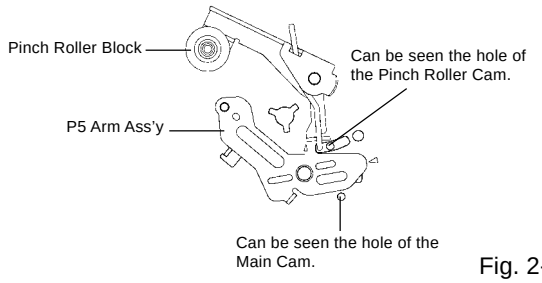


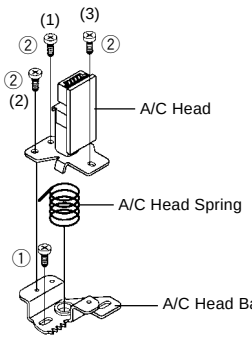

Fig. 2-9-B

### 2-10: A/C HEAD (Refer to Fig. 2-10-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

**NOTE**

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-10-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).




• Screw Torque: 5 ± 0.5kgf•cm (Screw ①)

Fig. 2-10-A

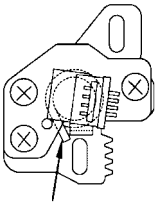
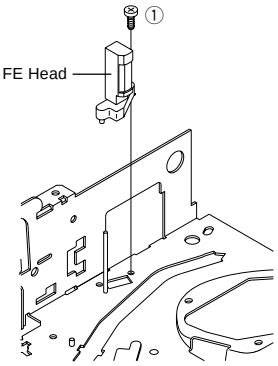



Fig. 2-10-B

### 2-11: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-11)

1. Remove the screw ①.
2. Remove the FE Head.




• Screw Torque: 5 ± 0.5kgf•cm
• The FE Head is not installed on the Video Cassette Player.

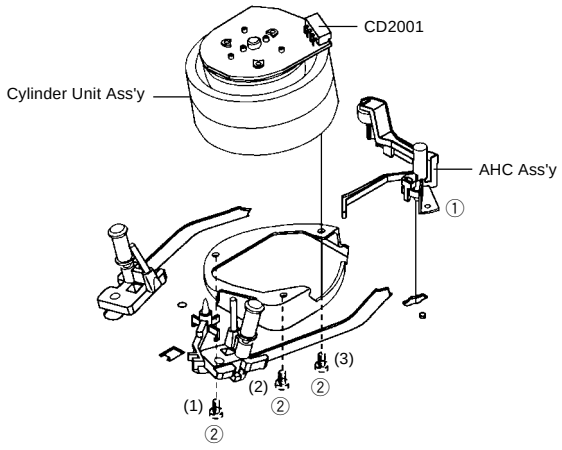
Fig. 2-11

### 2-12: CYLINDER UNIT ASS'Y (Refer to Fig. 2-12)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: **(CD2001)**.
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

**NOTE**

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



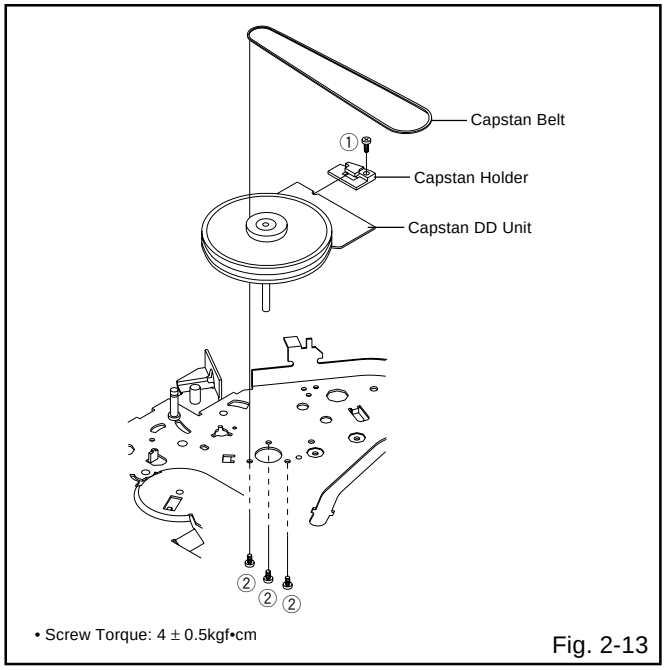

• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-12

# DISASSEMBLY INSTRUCTIONS

**2-13: CAPSTAN DD UNIT (Refer to Fig. 2-13)**

1. Remove the Capstan Belt.
2. Remove the screw ①.
3. Remove the Capstan Holder.
4. Remove the 3 screws ②.
5. Remove the Capstan DD Unit.




• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-13

**2-14: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-14-A)**

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

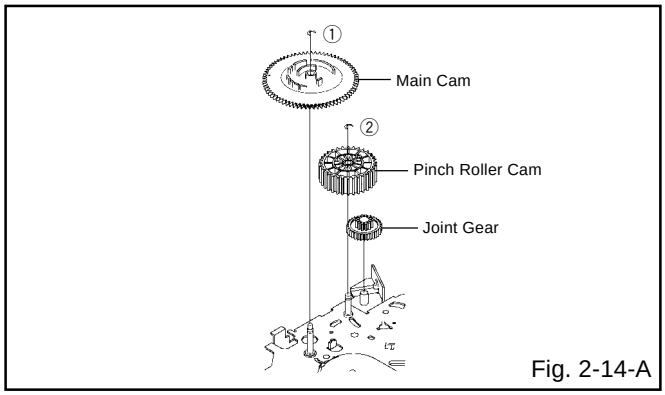



Fig. 2-14-A

**NOTE**

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-14-B so that the each markers are met. **(Refer to Fig. 2-14-B)** And also can be seen the Main Chassis hole through the Main Cam maker hole.

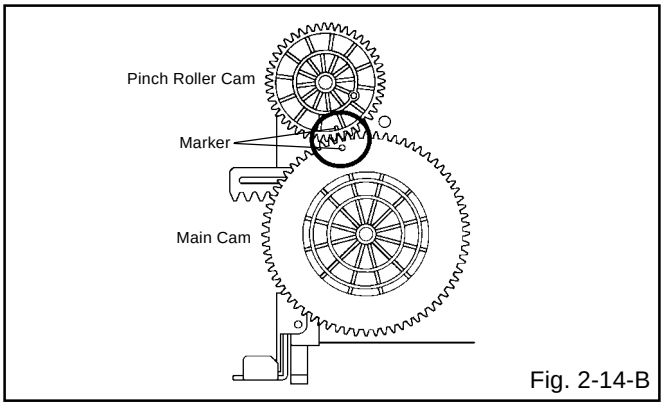



Fig. 2-14-B

**2-15: LOADING GEAR S/T UNIT (Refer to Fig. 2-15-A)**

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.

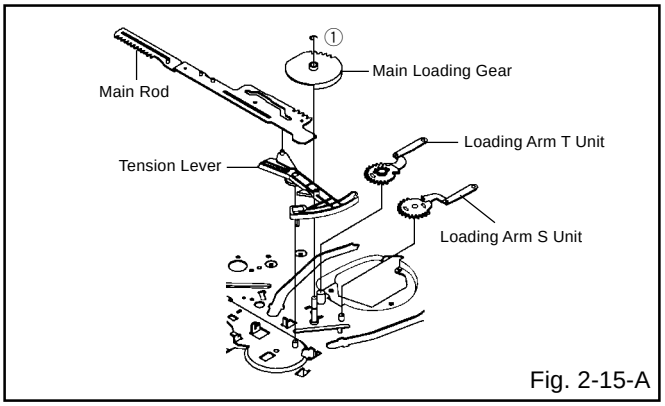



Fig. 2-15-A

# DISASSEMBLY INSTRUCTIONS

**NOTE**

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. **(Refer to Fig. 2-15-B)**

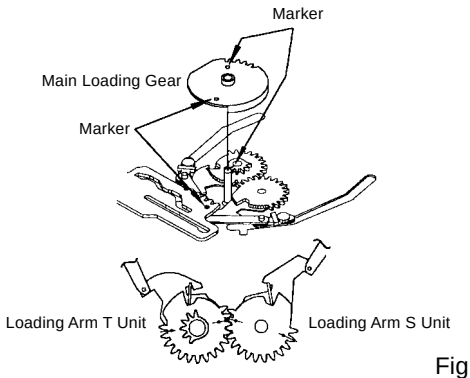



Fig. 2-15-B

**2-16: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-16-A)**

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.

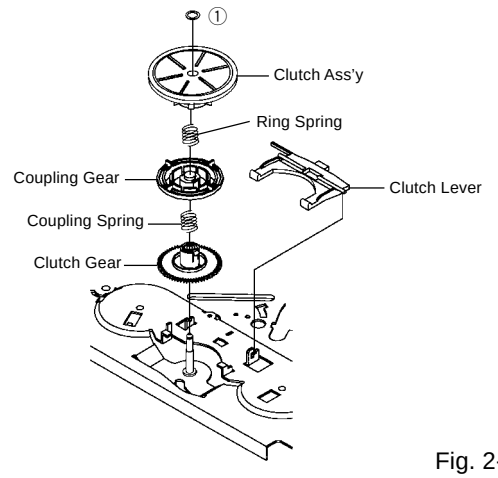



Fig. 2-16-A

**NOTE**

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. **(Refer to Fig. 2-16-B)**

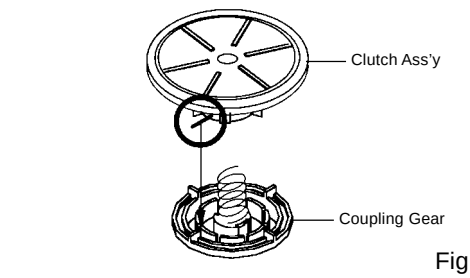



Fig. 2-16-B

**2-17: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-17-A)**

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.

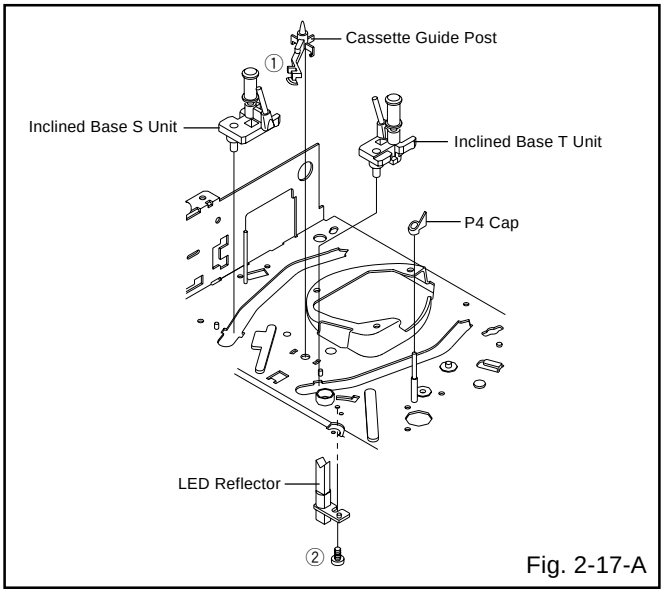



Fig. 2-17-A

**NOTE**

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-17-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-17-C.

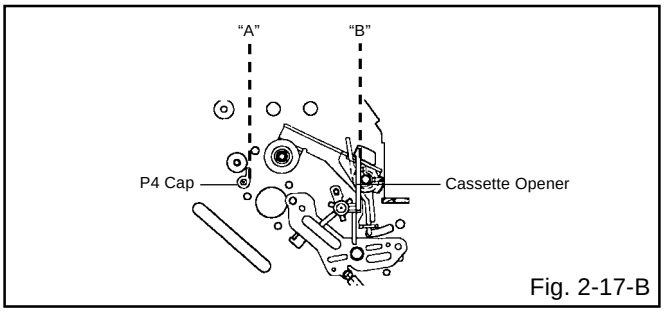



Fig. 2-17-B

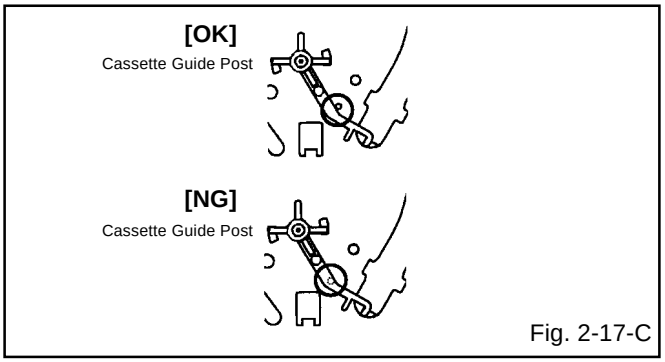



Fig. 2-17-C

# DISASSEMBLY INSTRUCTIONS

## 3. REMOVAL OF DVD DECK PARTS

**NOTE**

1. Disassemble only the DVD DECK PARTS parts listed here. Minute adjustments are needed if the disassembly is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

**3-1: TRAY (Refer to Fig. 3-1-A)**

1. Set the Tray opened. **(Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)**
2. Unlock the 2 supports ① and remove the Tray.

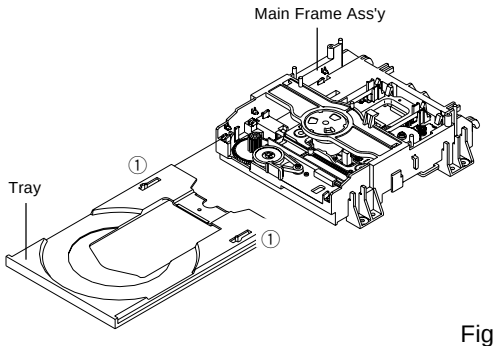



Fig. 3-1-A

**NOTE**

1. In case of the Tray installation, install them as the circled section of Fig. 3-1-B so that the each markers are met.

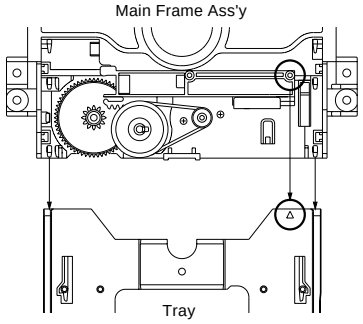



Fig. 3-1-B

**3-2: MAIN CHASSIS ASS'Y (Refer to Fig. 3-2-A)**

1. Remove the screw ①.
2. Unlock the 2 supports ②.
3. Remove the Insulator (R) from the Main Frame Ass'y.
4. Remove the Main Chassis Ass'y.

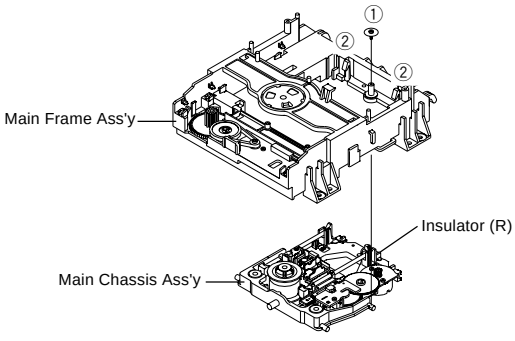



Fig. 3-2-A

**NOTE**

1. In case of the Main Chassis Ass'y, install it from (1) to (4) in order. **(Refer to Fig. 3-2-B)**
2. In case of the Main Chassis Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-2-C.

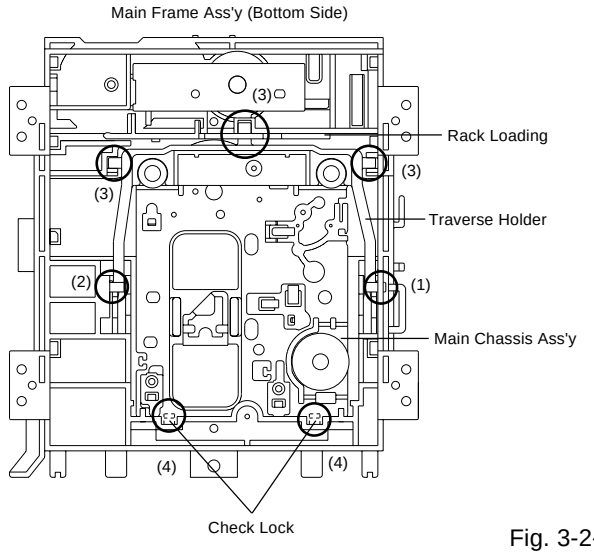



Fig. 3-2-B

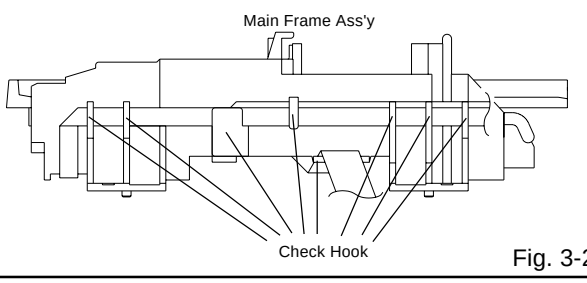
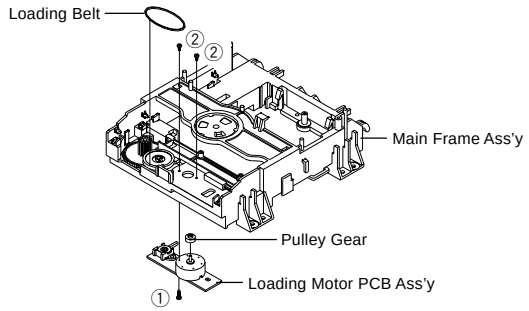



Fig. 3-2-C

# DISASSEMBLY INSTRUCTIONS

### 3-3: LOADING MOTOR PCB ASS'Y/ LOADING BELT (Refer to Fig. 3-3-A)

1. Remove the Loading Belt.
2. Remove the screw ①.
3. Remove the 2 screws ②.
4. Remove the Loading Motor PCB Ass'y.
5. Remove the Pulley Gear.




• Screw Torque: 2.5 ± 0.3kgf•cm (Screw ①)
• Screw Torque: 1.0 ± 0.3kgf•cm (Screw ②)

Fig. 3-3-A

**NOTE**

1. In case of the Pulley Motor installation, check if the value of the Fig. 3-3-B is correct.
2. When installing the Loading Motor PCB Ass'y, install it correctly as Fig. 3-3-C.
3. In case of the Loading Motor PCB Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-3-C.

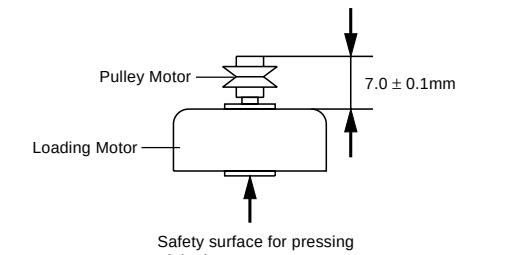



Fig. 3-3-B

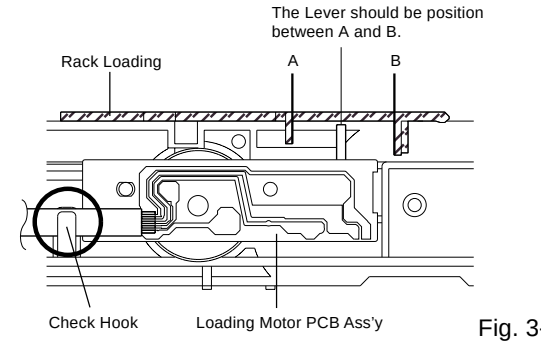



Fig. 3-3-C

### 3-4: RACK LOADING/MAIN GEAR/PULLEY GEAR (Refer to Fig. 3-4-A)

1. Press down the catcher ① and slide the Rack Loading.
2. Unlock the support ② and remove the Pulley Gear.
3. Remove the Main Gear.

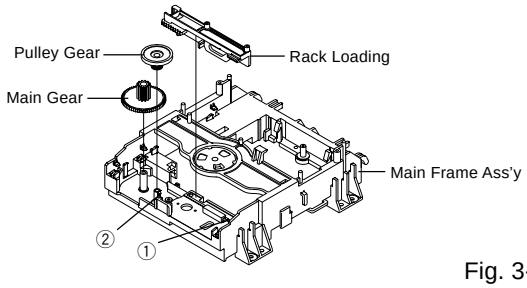



Fig. 3-4-A

**NOTE**

1. In case of the Rack Loading installation, do not mesh it to the Main Gear as shown the Fig. 3-4-B.

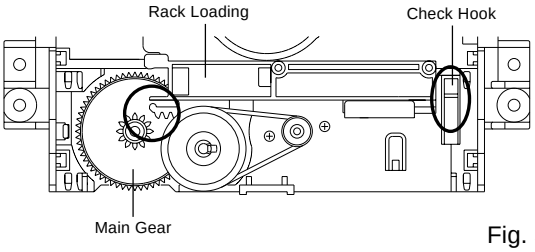



Fig. 3-4-B

### 3-5: CLAMPER ASS'Y (Refer to Fig. 3-5-A)

1. Press the Clamper and rotate the Clamper Plate clockwise, then unlock the 3 supports ①.
2. Remove the Clamper Plate, Clamper Magnet and Clamper.

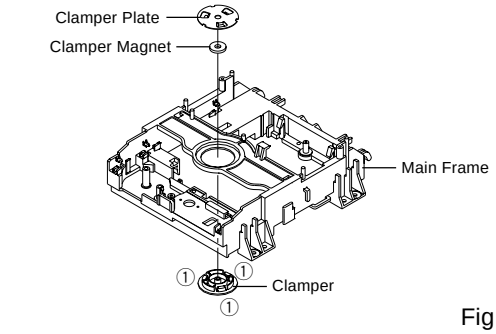



Fig. 3-5-A

# DISASSEMBLY INSTRUCTIONS

**NOTE**

1. In case of the Clamper Ass'y installation, install correctly as Fig. 3-5-B.

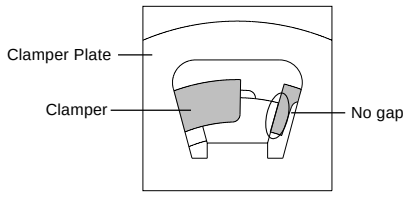



Fig. 3-5-B

**3-6: TRAVERSE HOLDER/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 3-6-A)**

1. Remove the Traverse Holder.
2. Remove the 2 Insulator (F).
3. Remove the Insulator (R).

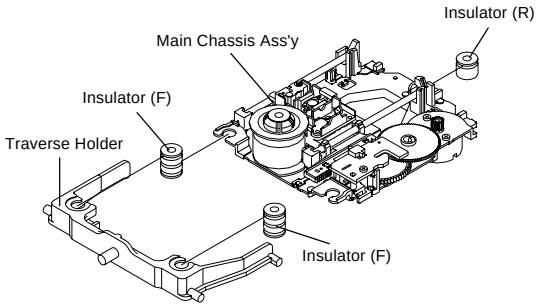



Fig. 3-6-A

**NOTE**

1. In case of the Insulator (F) installation, install correctly as Fig. 3-6-B.
2. In case of the Insulator (R) installation, install correctly as Fig. 3-6-C.

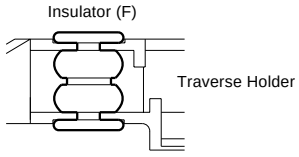



Fig. 3-6-B

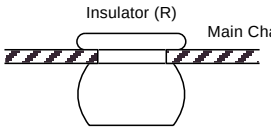



Fig. 3-6-C

**3-7: SWITCH PCB ASS'Y/MIDDLE GEAR/FEED MOTOR (Refer to Fig. 3-7-A)**

1. Remove the screw ①.
2. Remove the Switch PCB Ass'y.
3. Unlock the support ②.
4. Remove the Middle Gear.
5. Remove the 2 screws ③.
6. Remove the Feed Motor.
7. Remove the Motor Gear.

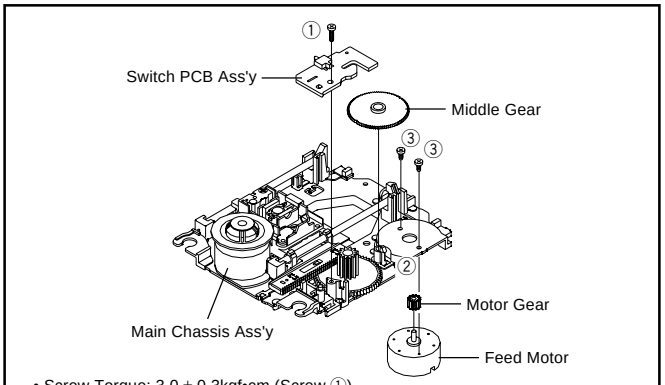



Fig. 3-7-A

**NOTE**

1. In case of the Motor Gear installation, check if the value of the Fig. 3-7-B is correct.
2. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 3-7-C.
3. After the assembly of the Main Chassis Ass'y, hook the wire on the Main Chassis Ass'y as shown Fig. 3-7-D.

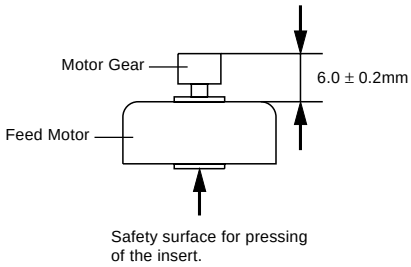



Fig. 3-7-B

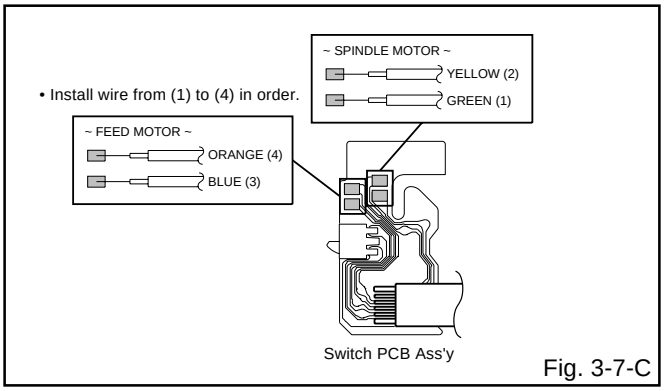
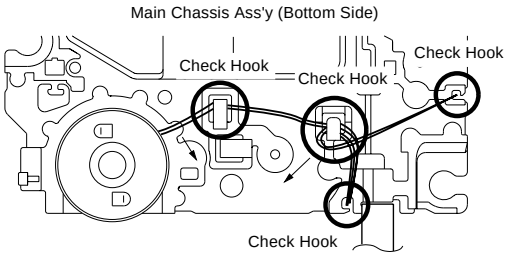



Fig. 3-7-C

# DISASSEMBLY INSTRUCTIONS




• Loosen the wire in the direction of the arrow.

Fig. 3-7-D

### 3-8: FFC WIRE HANDLING

1. When installing the FFC, fold it correctly and install it as shown from Fig. 3-8-A to Fig. 3-8-C.

**NOTE**

1. Do not make the folding lines except the specified positions for the FFC.

**[ 24 pin FFC ]**

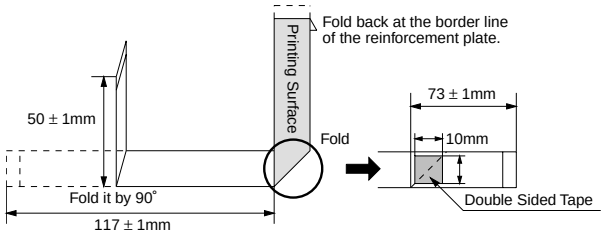
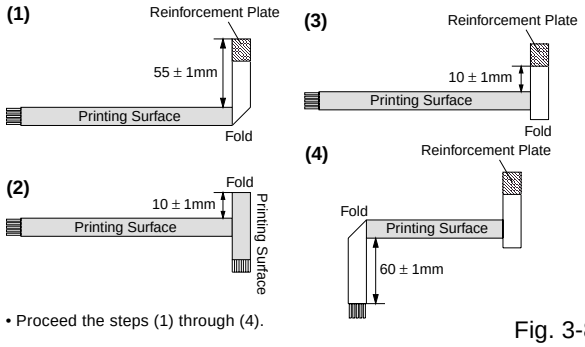



Fig. 3-8-A

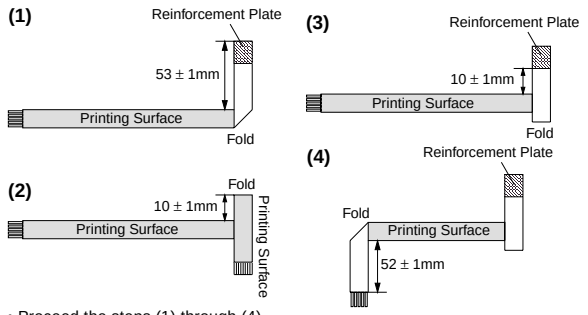
**[ 5 pin FFC ]**




• Proceed the steps (1) through (4).

Fig. 3-8-B

**[ 6 pin FFC ]**




• Proceed the steps (1) through (4).

Fig. 3-8-C

# DISASSEMBLY INSTRUCTIONS

## 4. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

**REMOVAL**

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 4-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

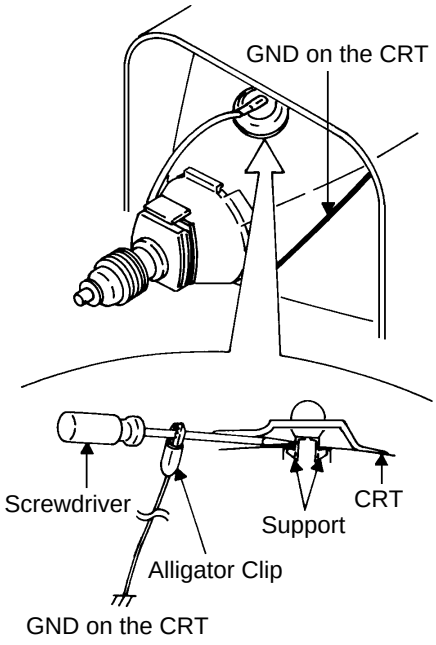


Fig. 4-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 4-2.)**

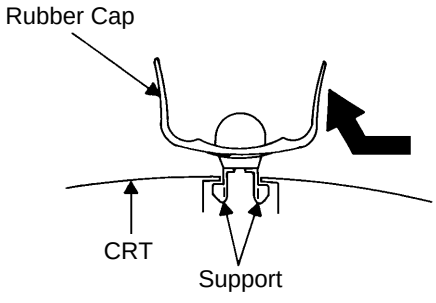


Fig. 4-2

3. After one side is removed, pull in the opposite direction to remove the other.

**NOTE**

Take care not to damage the Rubber Cap.

**INSTALLATION**

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 4-3.)**

**NOTE**

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

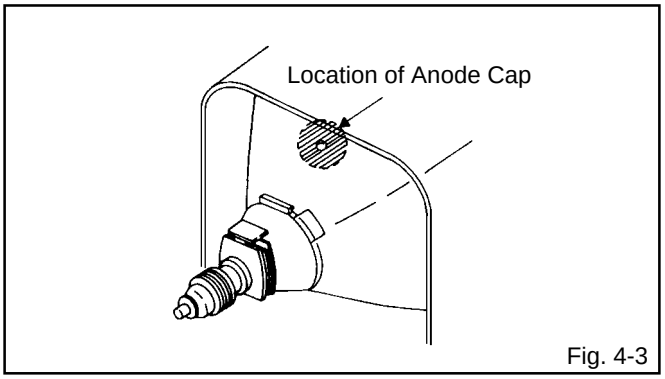


Fig. 4-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 4-4.)**

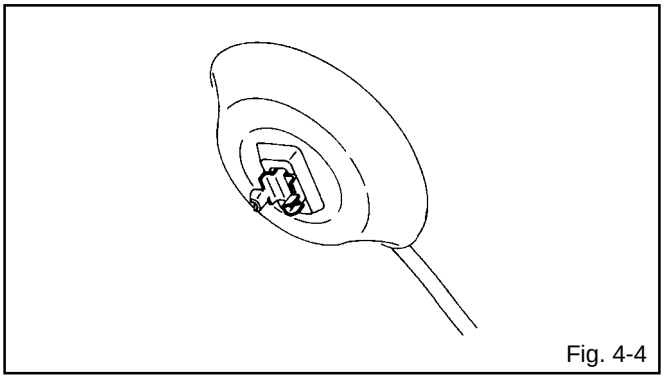


Fig. 4-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 4-5**.

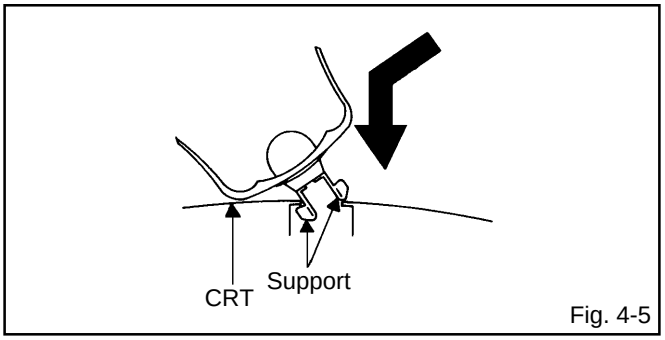


Fig. 4-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

# DISASSEMBLY INSTRUCTIONS

## 5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

**REMOVAL**

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 5-1.)**

   **NOTE**

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

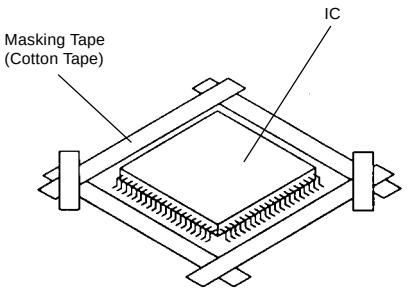



Fig. 5-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 5-2.)**

   **NOTE**

   Do not rotate or move the IC back and forth , until IC can move back and forth easily after desoldering the leads completely.

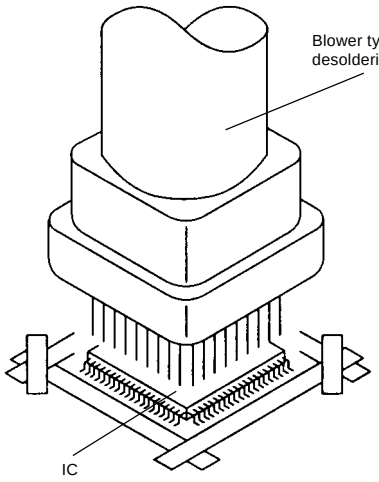



Fig. 5-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 5-3.)**

   **NOTE**

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

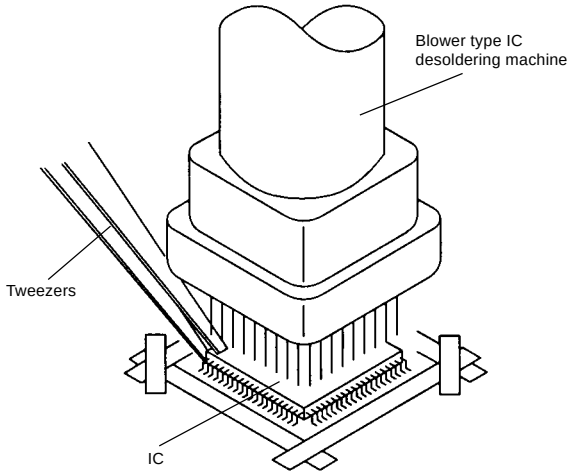



Fig. 5-3

4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 5-4.)**

   **NOTE**

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

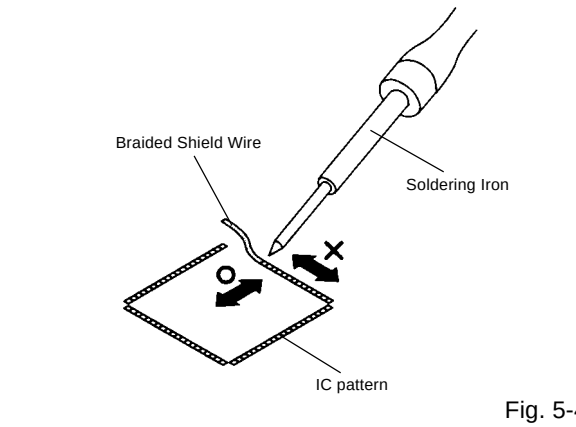



Fig. 5-4

# DISASSEMBLY INSTRUCTIONS

**INSTALLATION**

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 5-5.)**

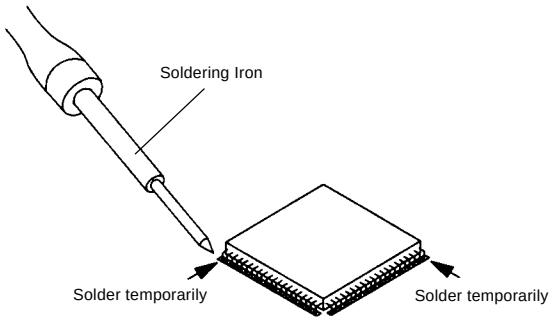



Fig. 5-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 5-6.)**

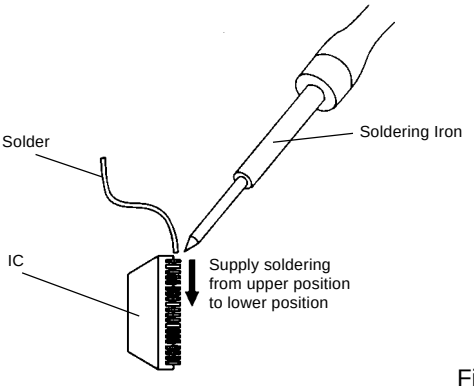



Fig. 5-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 5-7.)**

   **NOTE**

   Do not absorb the solder to excess.

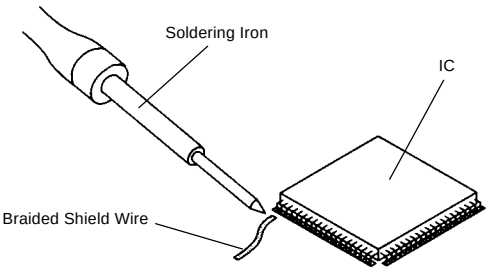



Fig. 5-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 5-8.)**

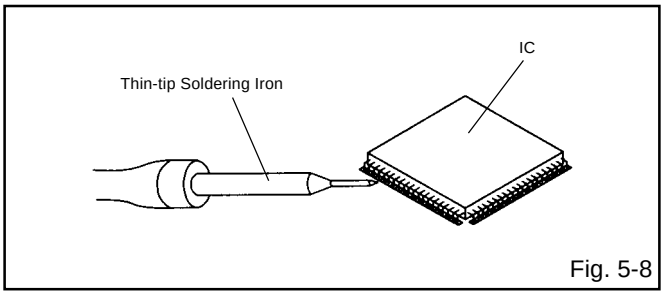



Fig. 5-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   **NOTE**

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

# KEY TO ABBREVIATIONS

| | | | |
|---|---|---|---|
| A | **A/C** | : | Audio/Control |
| | **ACC** | : | Automatic Color Control |
| | **AE** | : | Audio Erase |
| | **AFC** | : | Automatic Frequency Control |
| | **AFT** | : | Automatic Fine Tuning |
| | **AFT DET** | : | Automatic Fine Tuning Detect |
| | **AGC** | : | Automatic Gain Control |
| | **AMP** | : | Amplifier |
| | **ANT** | : | Antenna |
| | **A.PB** | : | Audio Playback |
| | **APC** | : | Automatic Phase Control |
| | **ASS'Y** | : | Assembly |
| | **AT** | : | All Time |
| | **AUTO** | : | Automatic |
| | **A/V** | : | Audio/Video |
| B | **BGP** | : | Burst Gate Pulse |
| | **BOT** | : | Beginning of Tape |
| | **BPF** | : | Bandpass Filter |
| | **BRAKE SOL** | : | Brake Solenoid |
| | **BUFF** | : | Buffer |
| | **B/W** | : | Black and White |
| C | **C** | : | Capacitance, Collector |
| | **CASE** | : | Cassette |
| | **CAP** | : | Capstan |
| | **CARR** | : | Carrier |
| | **CH** | : | Channel |
| | **CLK** | : | Clock |
| | **CLOCK (SY-SE)** | : | Clock (Syscon to Servo) |
| | **COMB** | : | Combination, Comb Filter |
| | **CONV** | : | Converter |
| | **CPM** | : | Capstan Motor |
| | **CTL** | : | Control |
| | **CYL** | : | Cylinder |
| | **CYL-M** | : | Cylinder-Motor |
| | **CYL SENS** | : | Cylinder-Sensor |
| D | **DATA (SY-CE)** | : | Data (Syscon to Servo) |
| | **dB** | : | Decibel |
| | **DC** | : | Direct Current |
| | **DD Unit** | : | Direct Drive Motor Unit |
| | **DEMOD** | : | Demodulator |
| | **DET** | : | Detector |
| | **DEV** | : | Deviation |
| E | **E** | : | Emitter |
| | **EF** | : | Emitter Follower |
| | **EMPH** | : | Emphasis |
| | **ENC** | : | Encoder |
| | **ENV** | : | Envelope |
| | **EOT** | : | End of Tape |
| | **EQ** | : | Equalizer |
| | **EXT** | : | External |
| F | **F** | : | Fuse |
| | **FBC** | : | Feed Back Clamp |
| | **FE** | : | Full Erase |
| | **FF** | : | Fast Forward, Flip-flop |
| | **FG** | : | Frequency Generator |
| | **FL SW** | : | Front Loading Switch |
| | **FM** | : | Frequency Modulation |
| | **FSC** | : | Frequency Sub Carrier |
| | **FWD** | : | Forward |
| G | **GEN** | : | Generator |
| | **GND** | : | Ground |
| H | **H.P.F** | : | High Pass Filter |
| | **H.SW** | : | Head Switch |
| | **Hz** | : | Hertz |
| I | **IC** | : | Integrated Circuit |
| | **IF** | : | Intermediate Frequency |
| | **IND** | : | Indicator |
| | **INV** | : | Inverter |
| K | **KIL** | : | Killer |
| L | **L** | : | Left |
| | **LED** | : | Light Emitting Diode |
| | **LIMIT AMP** | : | Limiter Amplifier |
| | **LM, LDM** | : | Loading Motor |
| | **LP** | : | Long Play |
| | **L.P.F** | : | Low Pass Filter |
| | **LUMI.** | : | Luminance |
| M | **M** | : | Motor |
| | **MAX** | : | Maximum |
| | **MINI** | : | Minimum |
| | **MIX** | : | Mixer, mixing |
| | **MM** | : | Monostable Multivibrator |
| | **MOD** | : | Modulator, Modulation |
| | **MPX** | : | Multiplexer, Multiplex |
| | **MS SW** | : | Mecha State Switch |
| N | **NC** | : | Non Connection |
| | **NR** | : | Noise Reduction |
| O | **OSC** | : | Oscillator |
| | **OPE** | : | Operation |
| P | **PB** | : | Playback |
| | **PB CTL** | : | Playback Control |
| | **PB-C** | : | Playback-Chrominance |
| | **PB-Y** | : | Playback-Luminance |
| | **PCB** | : | Printed Circuit Board |
| | **P. CON** | : | Power Control |
| | **PD** | : | Phase Detector |
| | **PG** | : | Pulse Generator |
| | **P-P** | : | Peak-to Peak |
| R | **R** | : | Right |
| | **REC** | : | Recording |
| | **REC-C** | : | Recording-Chrominance |
| | **REC-Y** | : | Recording-Luminance |
| | **REEL BRK** | : | Reel Brake |
| | **REEL S** | : | Reel Sensor |
| | **REF** | : | Reference |
| | **REG** | : | Regulated, Regulator |
| | **REW** | : | Rewind |
| | **REV, RVS** | : | Reverse |
| | **RF** | : | Radio Frequency |
| | **RMC** | : | Remote Control |
| | **RY** | : | Relay |
| S | **S. CLK** | : | Serial Clock |
| | **S. COM** | : | Sensor Common |
| | **S. DATA** | : | Serial Data |
| | **SEG** | : | Segment |
| | **SEL** | : | Select, Selector |
| | **SENS** | : | Sensor |
| | **SER** | : | Search Mode |
| | **SI** | : | Serial Input |
| | **SIF** | : | Sound Intermediate Frequency |
| | **SO** | : | Serial Output |
| | **SOL** | : | Solenoid |
| | **SP** | : | Standard Play |

# KEY TO ABBREVIATIONS

| | | | |
|---|---|---|---|
| **S** | **STB** | : | Serial Strobe |
| | **SW** | : | Switch |
| | **SYNC** | : | Synchronization |
| | **SYNC SEP** | : | Sync Separator, Separation |
| **T** | **TR** | : | Transistor |
| | **TRAC** | : | Tracking |
| | **TRICK PB** | : | Trick Playback |
| | **TP** | : | Test Point |
| **U** | **UNREG** | : | Unregulated |
| **V** | **V** | : | Volt |
| | **VCO** | : | Voltage Controlled Oscillator |
| | **VIF** | : | Video Intermediate Frequency |
| | **VP** | : | Vertical Pulse, Voltage Display |
| | **V.PB** | : | Video Playback |
| | **VR** | : | Variable Resistor |
| | **V.REC** | : | Video Recording |
| | **VSF** | : | Visual Search Fast Forward |
| | **VSR** | : | Visual Search Rewind |
| | **VSS** | : | Voltage Super Source |
| | **V-SYNC** | : | Vertical-Synchronization |
| | **VT** | : | Voltage Tuning |
| **X** | **X'TAL** | : | Crystal |
| **Y** | **Y/C** | : | Luminance/Chrominance |

# SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than the standard time (second).

| Set Condition | Set Key | Remocon Key | Standard Time | Operations |
|---|---|---|---|---|
| TV mode | VOL. (-) MIN | 0 | 2 | Releasing of V-CHIP PASSWORD. |
| TV mode | VOL. (-) MIN | 1 | 2 | Initialization of factory data.<br>NOTE: Do not use this for data normal servicing.<br>If you set factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours. |
| VCR mode (Playback) | VOL. (-) MIN | 3 | 2 | Adjust the PG SHIFTER automatically.<br>Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER). |
| VCR mode (Playback) | VOL. (-) MIN | 4 | 2 | Adjust the PG SHIFTER manually.<br>Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER). |
| VCR mode (Playback) | VOL. (-) MIN | 5 | 2 | Adjusting of the Tracking to the center position. |
| TV mode | VOL. (-) MIN | 6 | 2 | POWER ON total hours and PLAY/REC total hours are displayed on the screen.<br>Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED).<br><br>Can be checked of the INITIAL DATA of MEMORY IC.<br>Refer to the "WHEN REPLACING EEPROM (MEMORY) IC". |
| ALL mode | VOL. (-) MIN | 9 | 2 | Display of the Adjustment MENU on the screen.<br>Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment). |
| DVD mode (No disc) | REC/OTR | 4 | 2 | Initialization of factory on DVD data.<br>NOTE: Do not use this for normal servicing.<br>The function will only work without the setting of DVD disc at DVD mode. |
| DVD mode (No disc) | STOP (DVD) | 7 | 3 | Releasing of PARENTAL LOCK.<br>Refer to the “PARENTAL CONTROL - RATING LEVEL”.<br>NOTE: The function will only work without the setting of DVD disc at DVD mode. |
| DVD mode (Stop) | STOP (DVD) | 9 | 3 | Tray cannot be opened.<br>Refer to the “TRAY LOCK”.<br>NOTE: No indications on the screen when the Tray Lock is setting. |

| Set Condition | Set Key | Remocon Key | Standard Time | Operations |
|---|---|---|---|---|
| ALL mode | VOL. (-) MIN | FF | 2 | The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.<br>Refer to the "PREPARATION FOR SERVICING" |

# PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.
Parts replacing time does not mean the life span for individual parts.
Also, long term storage or misuse may cause transformation and aging of rubber parts.
The following list means standard hours, so the checking hours depends on the conditions.

| Time / Parts Name | 500 hours | 1,000 hours | 1,500 hours | 2,000 hours | 2,500 hours | Notes |
|---|---|---|---|---|---|---|
| Audio Control Head | ■ | ■ | ■ | ● | ● | Clean those parts in contact with the tape. |
| Full Erase Head (Recorder only) | ■ | ■ | ■ | ● | ● | |
| Capstan Belt | | ● | ● | ● | ● | Clean the rubber, and parts which the rubber touches. |
| Pinch Roller | ■ | ● | ● | ● | ● | |
| Capstan DD Unit | | ● | ● | ● | ● | |
| Loading Motor | | | | | ● | |
| Tension Band | | ● | ● | ● | ● | |
| T Brake Band | | ● | ● | ● | ● | |
| Clutch Ass'y | | ● | ● | ● | ● | |
| Idler Arm Ass'y | | ● | ● | ● | ● | |
| Capstan Shaft | ■ | ■ | ■ | ■ | ■ | |
| Tape Running Guide Post | ■ | ■ | ■ | ■ | ■ | Replace when rolling becomes abnormal. |
| Cylinder Unit | ■ | ● | ● | ● | ● | Clean the Head |

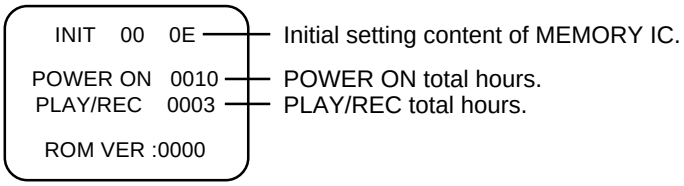
■ : Clean
● : Check it and if necessary, replace it.

## CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

**NOTE: If you set a factory initialization, the total hours is reset to "0".**

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds.
4. After the confirmation of using hours, turn off the power.




(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

# PREVENTIVE CHECKS AND SERVICE INTERVALS

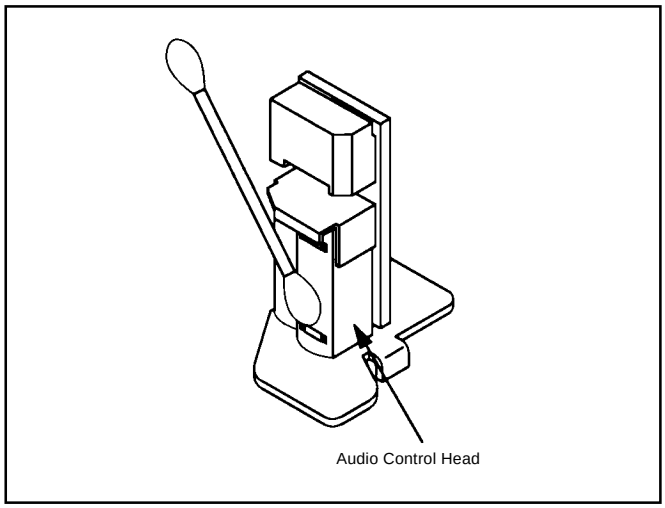
## CLEANING

**NOTE**

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

**1. AUDIO CONTROL HEAD**

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**




**2. TAPE RUNNING SYSTEM**

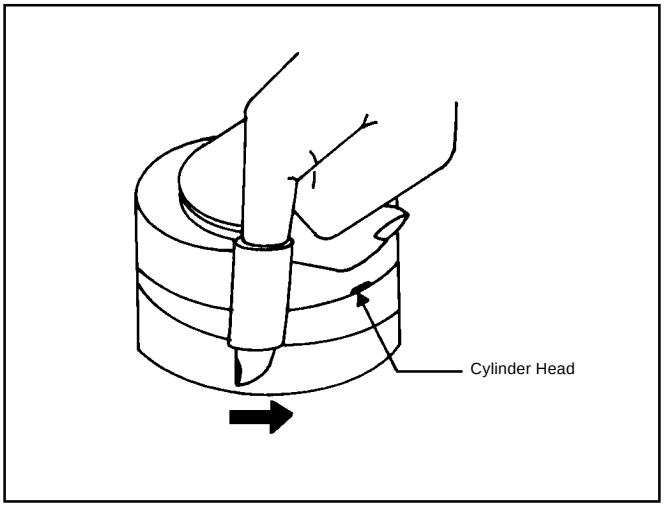
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

**3. CYLINDER**

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

**NOTE**

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



# WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

**NOTE: No need to set data for the position of the "@" due to the adjustment value.**
**No need to set data for after position INI 44 due to the adjustment value.**

| INI | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 | +9 | +A | +B | +C | +D | +E | +F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | 2F | 40 | 34 | 02 | C3 | DD | 47 | ***1** | 86 | 44 | D0 | 18 | A6 | 01 | 86 | 55 |
| 10 | 40 | 0F | E3 | 52 | 03 | 02 | 00 | 48 | 00 | F6 | 15 | 4B | 1D | 54 | 83 | B1 |
| 20 | 99 | 96 | 8B | 9F | B7 | A5 | 91 | B6 | 1A | 0B | 3D | 08 | 37 | 16 | 27 | 30 |
| 30 | 45 | 31 | 19 | 40 | 00 | @ | @ | 00 | 00 | 23 | FF | FF | FF | 80 | 88 | 83 |
| 40 | 88 | 89 | 88 | FF | FF | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

***1**

| INI | USA | CANADA |
|---|---|---|
| 07 | 22 | 32 |

Table 1

1. Turn on the POWER, and set to the TV mode.
2. Enter DATA SET mode by setting VOLUME to minimum.
3. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

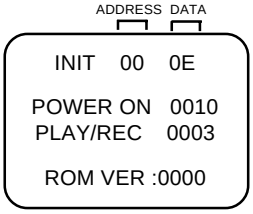



**Fig. 1**

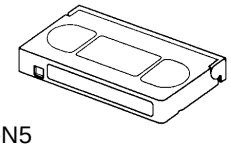
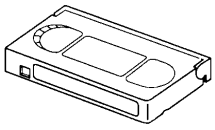
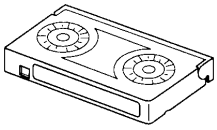
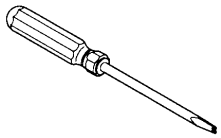
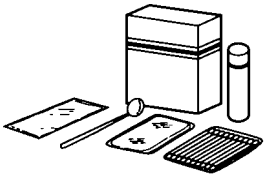
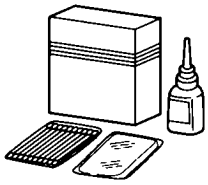
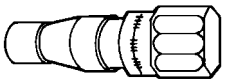
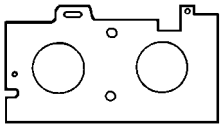
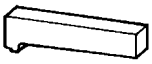
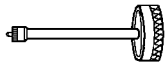
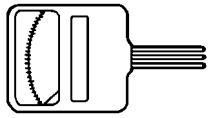
4. ADDRESS is now selected and should "blink". Using the RIGHT or LEFT button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using RIGHT or LEFT button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

**After the data input, set to the initializing of shipping.**

10. Turn on the POWER, and set to the TV mode.
11. Press both VOL. DOWN button on the set and the Channel button **(1)** on the remote control for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

# SERVICING FIXTURES AND TOOLS

| | | | |
|---|---|---|---|
| Alignment Tape<br>  <br>ST-N5<br>ST-NF | Back tension cassette gauge<br>  <br>70909103 | Torque cassette gauge (KT-300NR)<br>  <br>70909199 | Taper nut driver<br>  <br>70909228 |
| VTR cleaning kit<br>  | VTR lubrication kit<br>  | Grease<br> | JG002B Adapter<br>JG002E Dial Torque Gauge (10~90gf•cm)<br>JG002F (60~600gf•cm)<br>  |
| JG022 Master Plane<br>  | JG024A Reel Disk Height Adjustment Jig<br>  | JG153 X Value Adjustment Screwdriver<br>  | JG185 Tentelometer<br>  |

| Ref. No. | Part No. | Parts Name | Remarks |
|---|---|---|---|
| JG002B | APJG002B00 | Adapter | VSR Torque, Brake Torque (S Reel/T Reel Ass'y) |
| JG002E | APJG002E00 | Dial Torque Gauge (10~90gf•cm) | Brake Torque (T Reel Ass'y) |
| JG002F | APJG002F00 | Dial Torque Gauge (60~600gf•cm) | VSR Torque, Brake Torque (S Reel) |
| JG022 | APJG022000 | Master Plane | Reel Disk Height Adjustment |
| JG024A | APJG024A00 | Reel Disk Height Adjustment Jig | Reel Disk Height Adjustment |
| JG153 | APJG153000 | X Value Adjustment Screwdriver | X Value Adjustment |
| JG185 | APJG185000 | Tentelometer | Confirmation of Tape Tension on Playback |

# PREPARATION FOR SERVICING

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the FF button on the set for more than 2 seconds.
   (The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
3. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
   Turn on the power and re-check the cable before checking the trouble points.

# MECHANICAL ADJUSTMENTS

## 1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

### 1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig **(JG024A)** and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

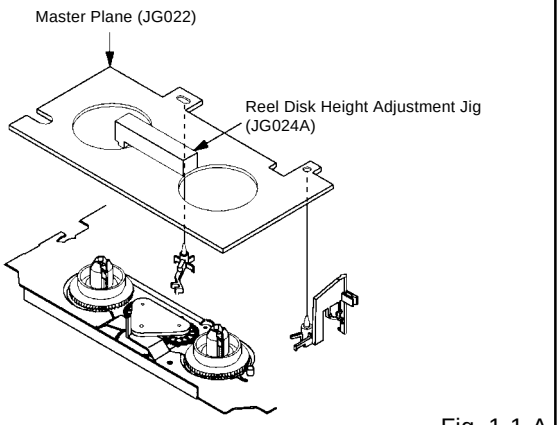


Fig. 1-1-A

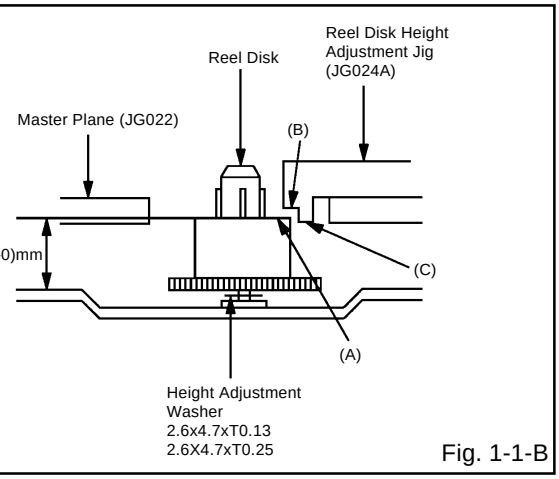


Fig. 1-1-B

### 1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

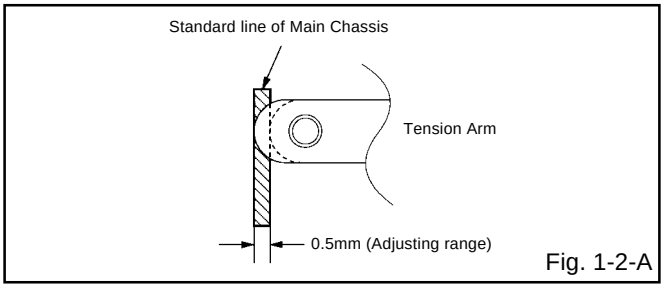
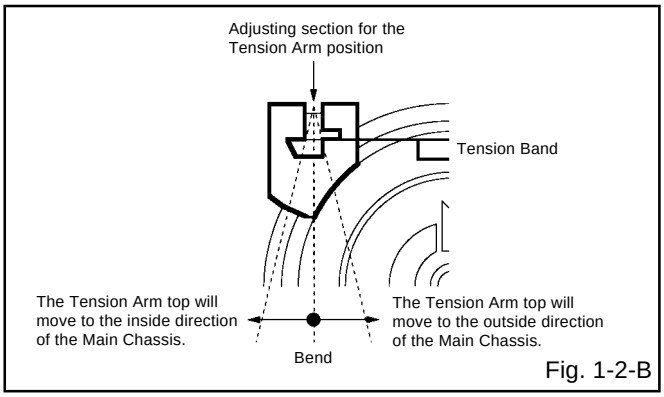


Fig. 1-2-A


Adjusting section for the Tension Arm position
Tension Band
The Tension Arm top will move to the inside direction of the Main Chassis.
The Tension Arm top will move to the outside direction of the Main Chassis.
Bend
Fig. 1-2-B

### 1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer (JG185) as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(KT-300NR)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(KT-300NR)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

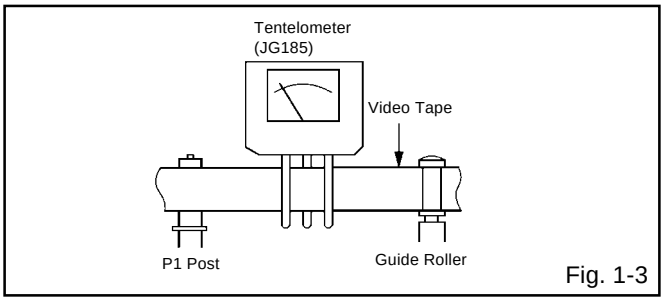


Fig. 1-3

# MECHANICAL ADJUSTMENTS

### 1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4-B)**
2. Then, confirm that it indicates 120~180gf•cm.

**NOTE**

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

### 1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

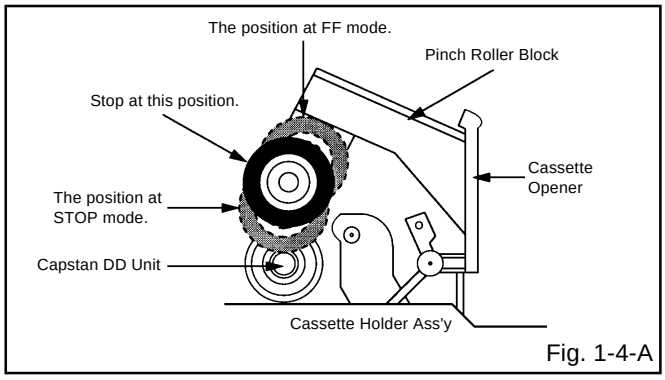


Fig. 1-4-A

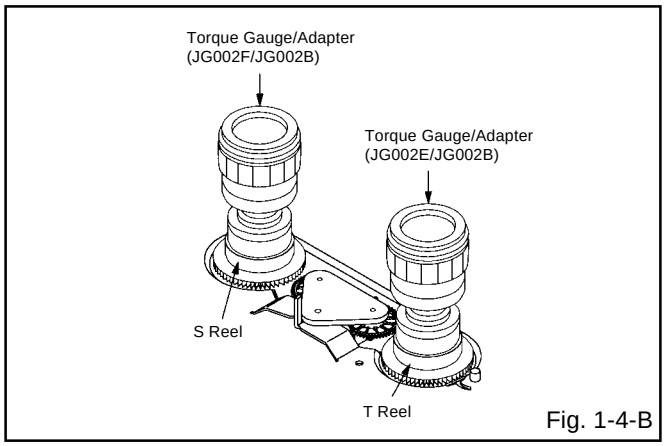


Fig. 1-4-B

**NOTE**

If the torque is out of the range, replace the following parts.

| Check item | Replacement Part |
|---|---|
| 1-4 | Idler Ass'y/Clutch Ass'y |
| 1-5 | S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y<br>T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm |

## 2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

### 2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4501 (Envelope)** and CH-2 to **TP102 (SW Pulse)**.
3. Press both VOL. DOWN button on the set and the Channel button **(5)** on the remote control for more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat.
   Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback.
   **(Refer to the ELECTRICAL ADJUSTMENTS)**

**NOTE**

After adjustment, confirm and adjust A/C head.
**(Refer to item 2-2)**

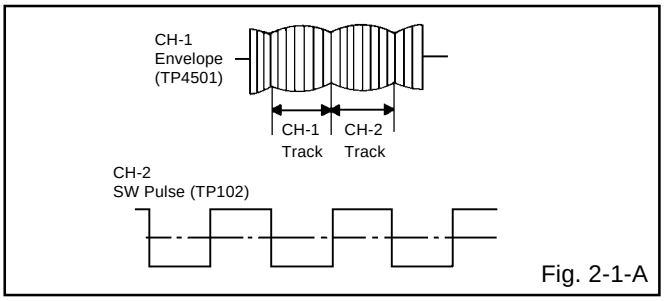


Fig. 2-1-A

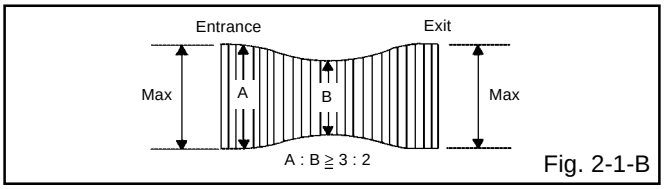


Fig. 2-1-B

# MECHANICAL ADJUSTMENTS

### 2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Cap as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

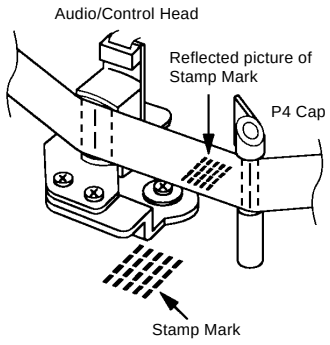


Fig. 2-2-A

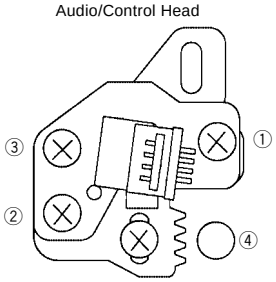


Fig. 2-2-B

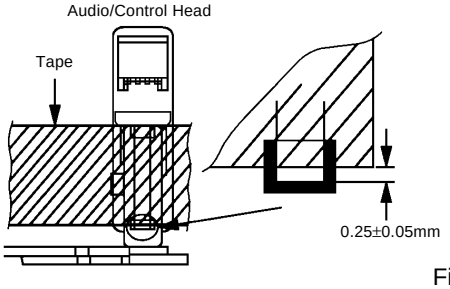


Fig. 2-2-C

### 2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP102**, CH-2 to **TP4501** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press both VOL. DOWN button on the set and the Channel button **(5)** on the remote control for more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

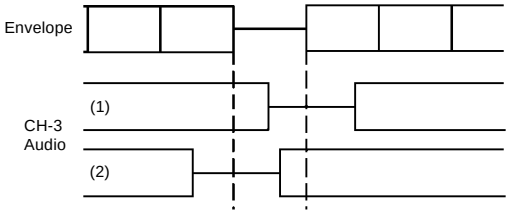
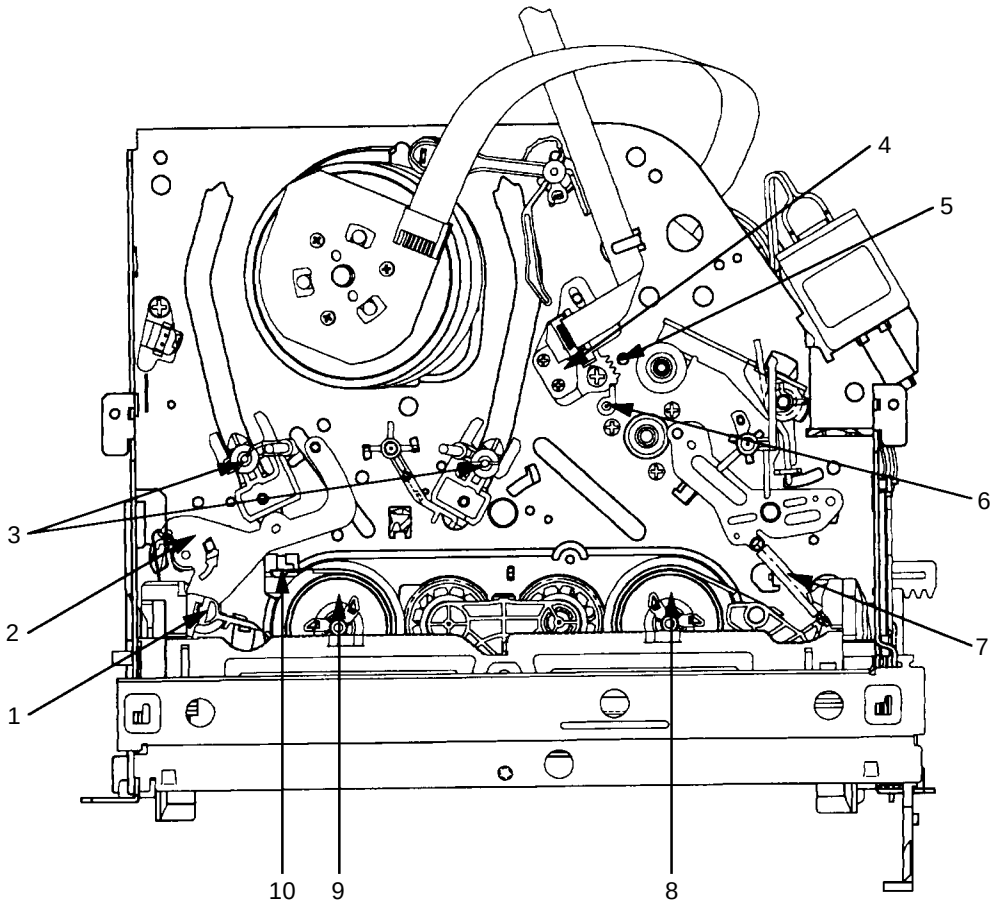


Fig. 2-3

# MECHANICAL ADJUSTMENTS

## 3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE




1. Tension Connect
2. Tension Arm
3. Guide Roller
4. Audio/Control Head
5. X value adjustment driver hole
6. P4 Post
7. T Brake Spring
8. T Reel
9. S Reel
10. Adjusting section for the Tension Arm position

# ELECTRICAL ADJUSTMENTS

## 1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

**CAUTION**

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor).

**Prepare the following measurement tools for electrical adjustments.**

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

**On-Screen Display Adjustment**

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

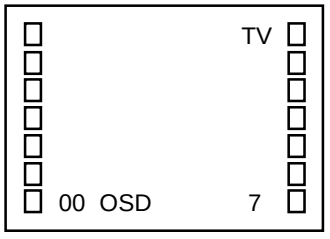



Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

| NO. | FUNCTION | NO. | FUNCTION |
|---|---|---|---|
| 00 | OSD H | 19 | BRI MIN |
| 01 | OSD C | 20 | CONT CENT |
| 02 | CUT OFF | 21 | CONT MAX |
| 03 | H.POSI | 22 | CONT MIN |
| 04 | H.BLK L | 23 | COL CENT |
| 05 | H.BLK R | 24 | COL MAX |
| 06 | V.SIZE | 25 | COL MIN |
| 07 | V.POSI | 26 | TINT |
| 08 | V.LIN | 27 | SHARP |
| 09 | VS.CORR | 28 | SUB BIAS |
| 10 | V.COMP | 29 | H.SIZE |
| 11 | R.BIAS | 30 | PARABOLA |
| 12 | G.BIAS | 31 | TRAPEZIUM |
| 13 | B.BIAS | 32 | COR TOP |
| 14 | R.DRV | 33 | COR BTM |
| 15 | G.DRV | 34 | H.COMP |
| 16 | B.DRV | 35 | T.STE |
| 17 | BRI CENT | 38 | H.FREQ |
| 18 | BRI MAX | | |

Fig. 1-2

## 2. BASIC ADJUSTMENTS (VCR SECTION)

**2-1: PG SHIFTER**

1. Connect CH-1 on the oscilloscope to **TP102** and CH-2 to **VIDEO OUT**.
2. Playback the alignment tape.
3. Press both VOL. DOWN button on the set and the Channel button **(5)** on the remote control for more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control for more than 2 seconds until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

**(If the above adjustments doesn't work well:)**

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control for more than 2 seconds until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control for more than 2 seconds and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H. **(Refer to Fig. 2-1-A, B)**

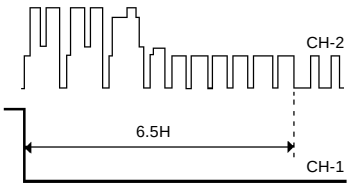



Fig. 2-1-A

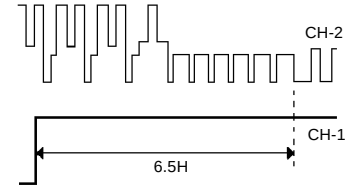



Fig. 2-1-B

# ELECTRICAL ADJUSTMENTS

## (TV SECTION)

### 2-2: CONSTANT VOLTAGE

1. Place the set in AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to **TP401**.
4. Adjust the **VR404** until the digital voltmeter is 114 ± 0.5V.

### 2-3: CUT OFF

1. Adjust the unit to the following settings.
   BRI.CENTER=127, CONT MAX=100,R.BIAS=127, G.BIAS=127, B.BIAS=127, R.DRV=63, G.DRV=07, B.DRV=63.
2. Place the set in Aging Test for more than 15 minutes.
3. Place the set in AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

### 2-4: WHITE BALANCE

**NOTE:** Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(11)** on the remote control to select "R.BIAS".
5. Press the CH. UP/DOWN button on the remote control to select the "R.BIAS", "G.BIAS", "B.BIAS", "R.DRV", "B.DRV" or "G.DRV".
6. Adjust the LEFT/RIGHT button on the remote control to whiten the R.BIAS, G.BIAS, B.BIAS, R.DRV, B.DRV, and G.DRV at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is achieved.

### 2-5: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "H.POSI".
4. Press the LEFT/RIGHT button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

### 2-6: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

### 2-7: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V.SIZE".
4. Press the LEFT/RIGHT button on the remote control until the Up/Down OVER SCAN Quantity becomes equal to the Right/Left OVER SCAN Quantity.

### 2-8: VERTICAL LINEARITY

**NOTE:** Adjust after performing adjustments in section 2-5. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "V.LIN".
4. Press the LEFT/RIGHT button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

### 2-9: BRIGHT CENTER

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
2. Press the LEFT/RIGHT button on the remote control until the white 10% is starting to be visible.
3. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 1, 2.
4. Press the DVD button on the remote control to set to the DVD mode.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
6. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

# ELECTRICAL ADJUSTMENTS

### 2-10: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the LEFT/RIGHT button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-2)**

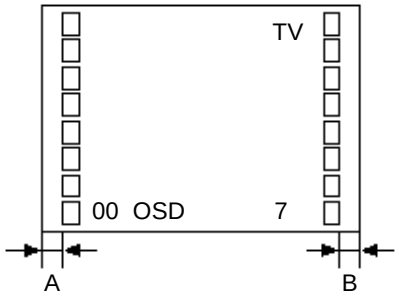


Fig. 2-2

### 2-11: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP803**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TINT".
5. Press the LEFT/RIGHT button on the remote control until the section "A" becomes a straight line **(Refer to Fig. 2-3)**.
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.
8. Press the DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TINT".
10. Press the LEFT/RIGHT button on the remote control until the tint step No. becomes "63".

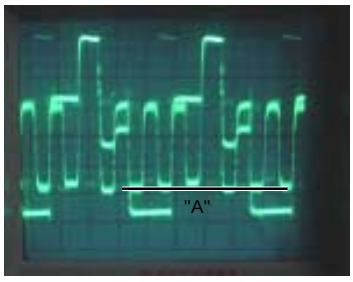


Fig. 2-3

### 2-12: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V.POSI".
4. Check if the step No. V POSI is "02".
5. Adjust the **VR404** until the horizontal line becomes fit to notch of the shadow mask. **(Refer to Fig. 2-4)**

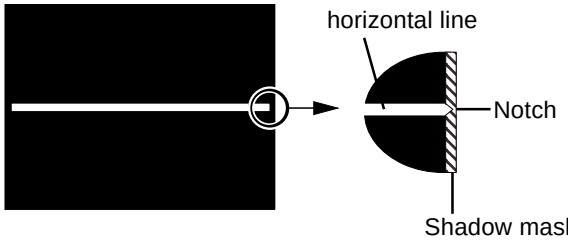


Fig. 2-4

### 2-13: COLOR CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP802**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the LEFT/RIGHT button on the remote control until the red color level is adjusted to 110 ± 5% of the white level. **(Refer to Fig. 2-5)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.
9. Press the DVD button on the remote control to set to the DVD mode.
10. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
11. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

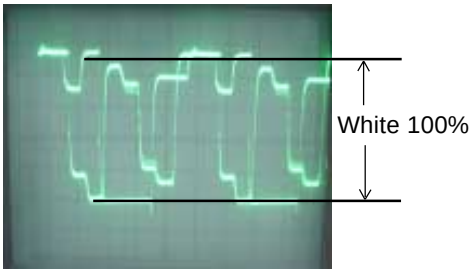


Fig. 2-5

**2-14: CONTRAST MAX**

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
2. Press the LEFT/RIGHT button on the remote control until the contrast step No. becomes "55".
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Press the DVD button on the remote control to set to the DVD mode.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
7. Press the LEFT/RIGHT button on the remote control to set the same step numbers as the AV mode.

**2-15: Confirmation of Fixed Value (step No.)**

Please check if the fixed values of the each adjustment items are set correctly referring below.

| NO. | FUNCTION | RF | AV | DVD |
|---|---|---|---|---|
| 01 | OSD CONT | 02 | 02 | 02 |
| 04 | H.BLK L | 02 | 02 | 02 |
| 05 | H.BLK R | 02 | 02 | 02 |
| 09 | VS.CORR | 07 | 07 | 07 |
| 10 | V.COMP | 03 | 03 | 03 |
| 15 | G.DRV | 07 | 07 | 07 |
| 18 | BRI MAX | 100 | 100 | 100 |
| 19 | BRI MIN | 25 | 25 | 25 |
| 20 | CONT CENT | 25 | 25 | 25 |
| 22 | CONT MIN | 10 | 10 | 10 |
| 24 | COL MAX | 127 | 127 | 127 |
| 25 | COL MIN | 00 | 00 | 00 |
| 27 | SHARPNESS | 30 | 30 | 15 |
| 28 | SUB BIAS | 20 | 20 | 20 |
| 29 | H.SIZE | 00 | 00 | 00 |
| 30 | PARABOLA | 00 | 00 | 00 |
| 31 | TRAPEZIUM | 00 | 00 | 00 |
| 32 | COR TOP | 00 | 00 | 00 |
| 33 | COR BTM | 00 | 00 | 00 |
| 34 | H.COMP | 00 | 00 | 00 |
| 35 | T.STE | 00 | 00 | 00 |

# ELECTRICAL ADJUSTMENTS

## 3. PURITY AND CONVERGENCE ADJUSTMENTS

**NOTE**

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

### 3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

### 3-2: PURITY

**NOTE**

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

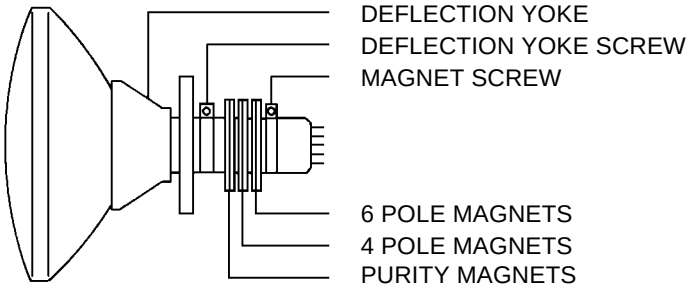



**Fig. 3-1**

### 3-3: STATIC CONVERGENCE

**NOTE**

Adjust after performing adjustments in section 3-2.

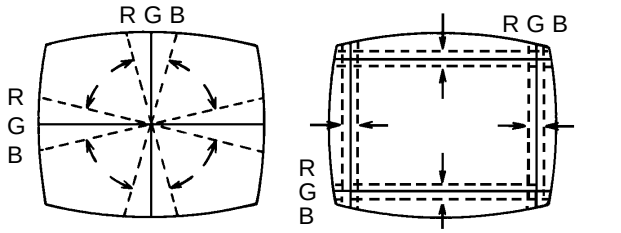
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 3-4: DYNAMIC CONVERGENCE

**NOTE**

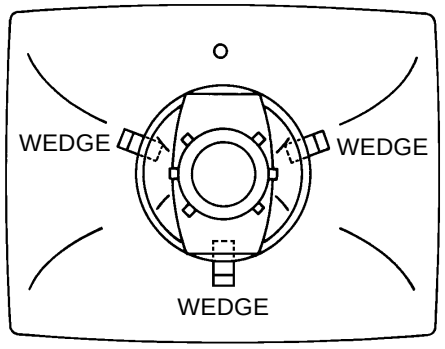
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**




UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

**Fig. 3-2-a**

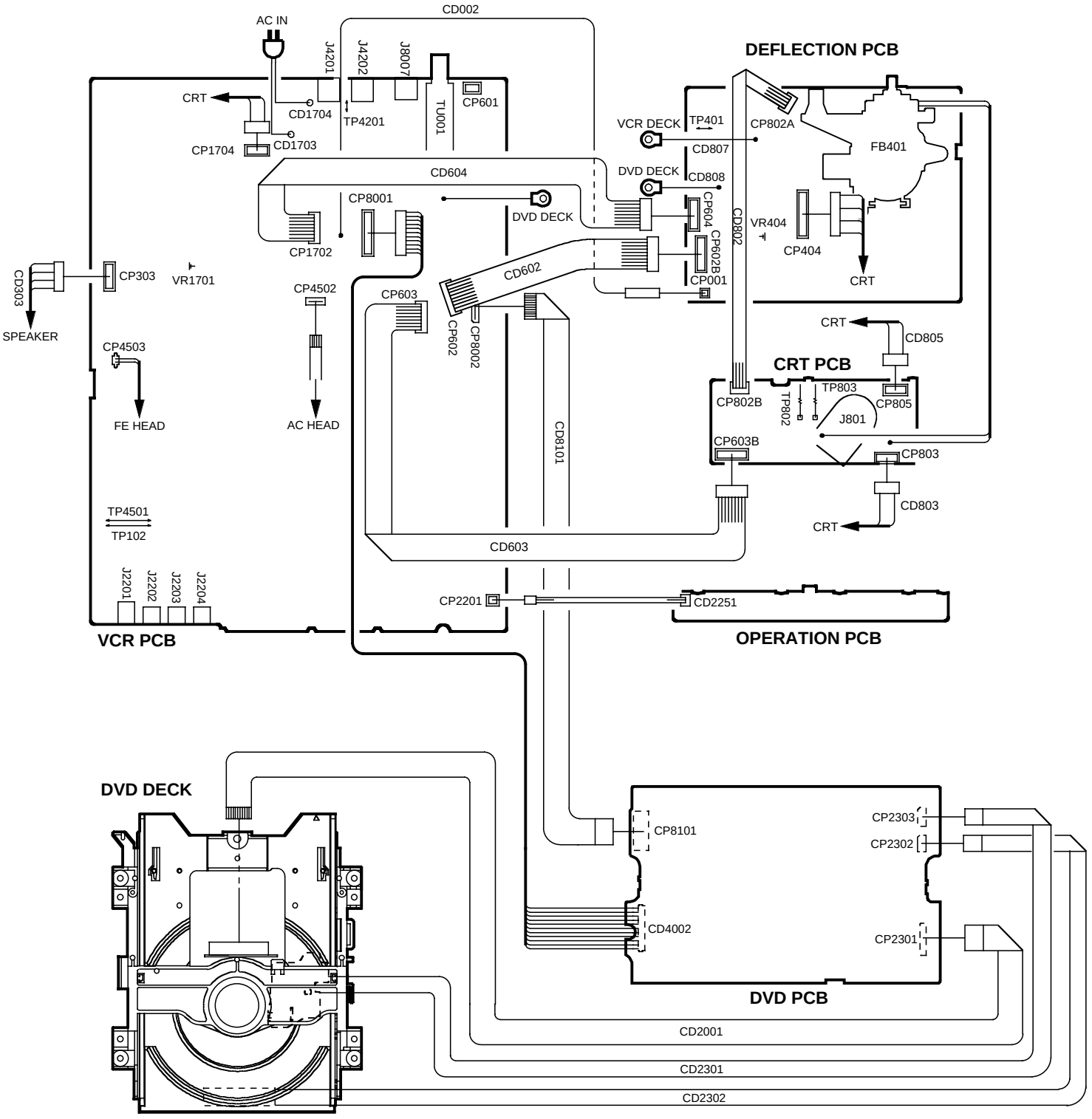



WEDGE POSITION

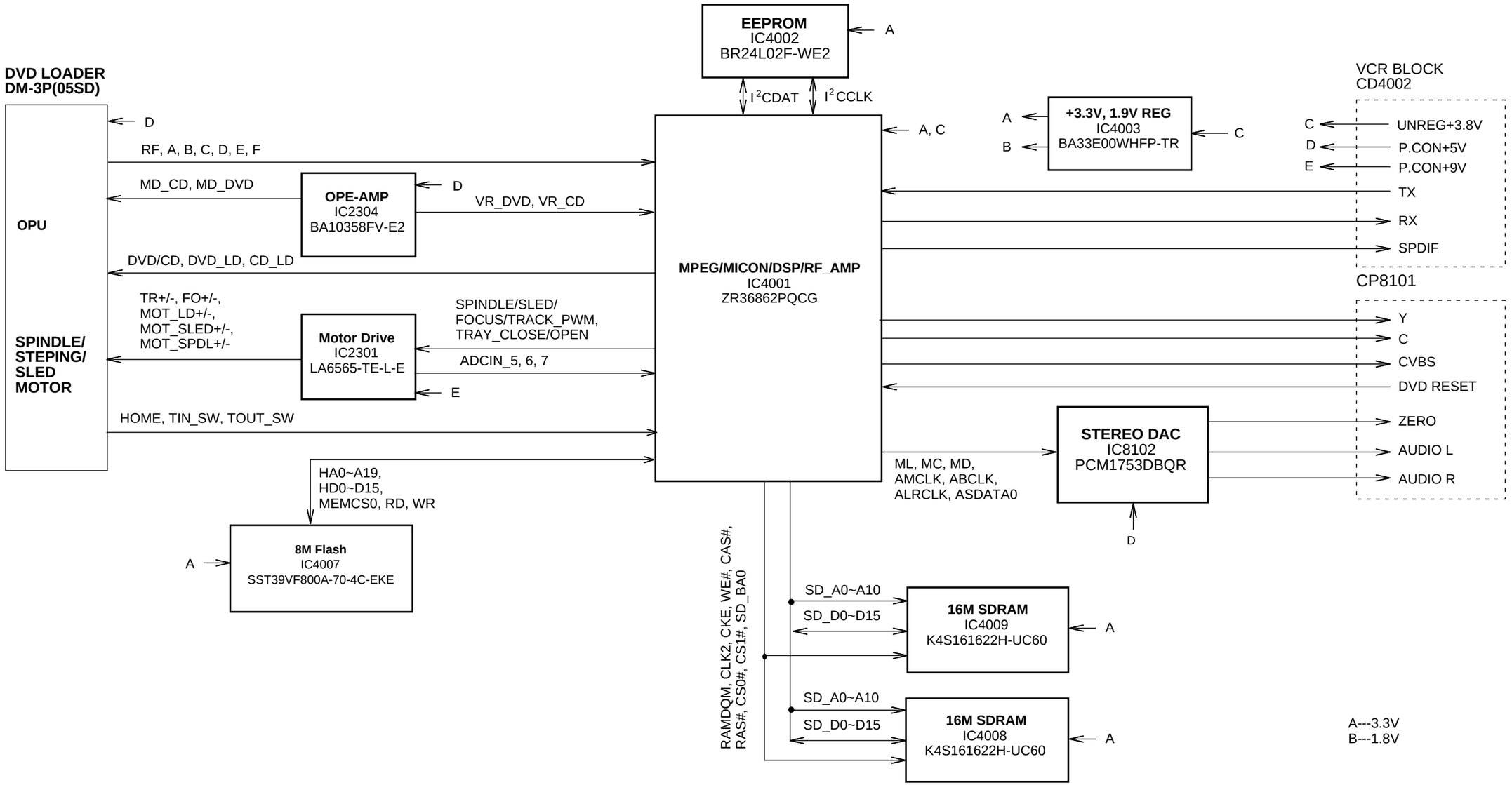
**Fig. 3-2-b**

# ELECTRICAL ADJUSTMENTS

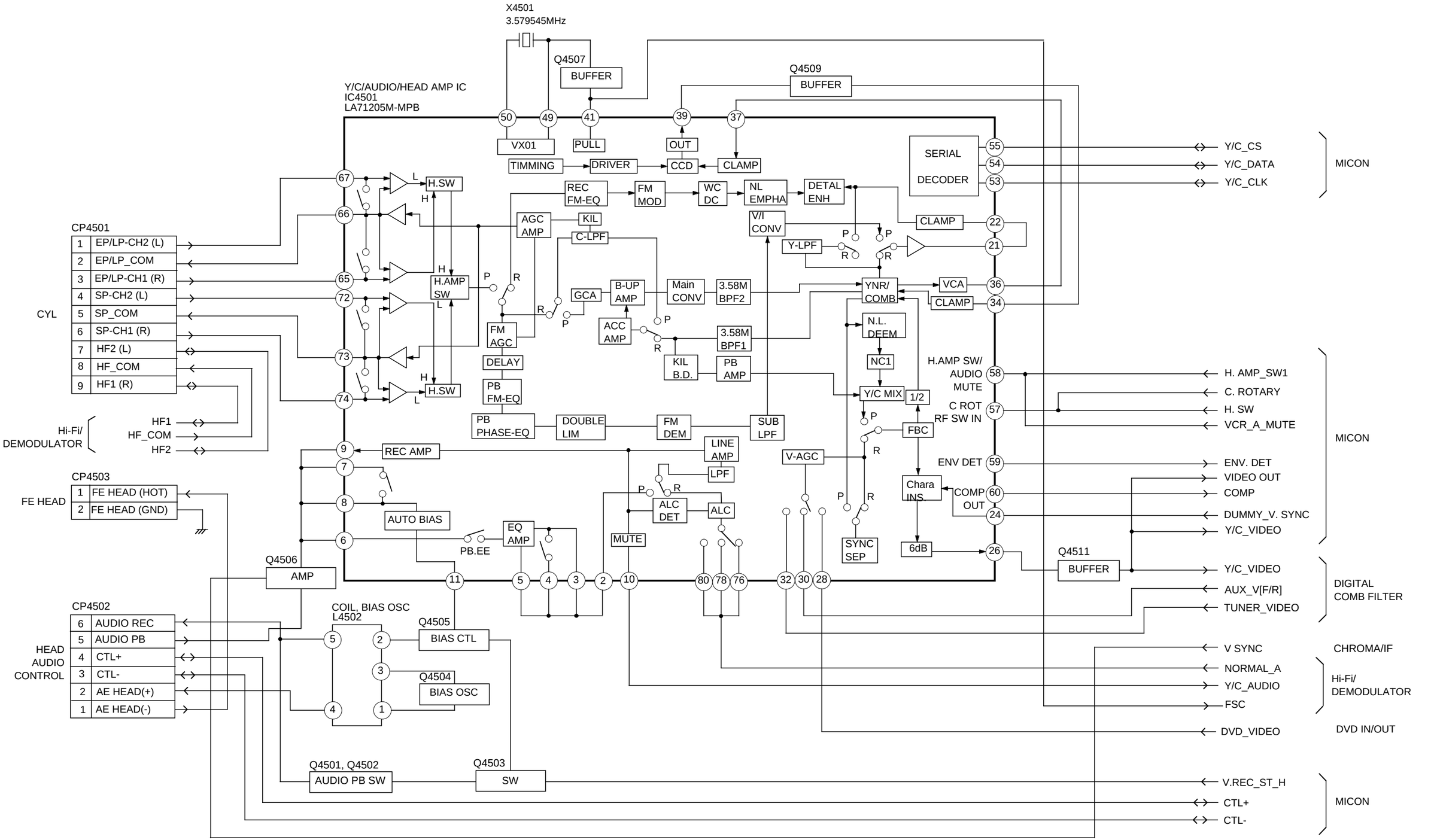
## 4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



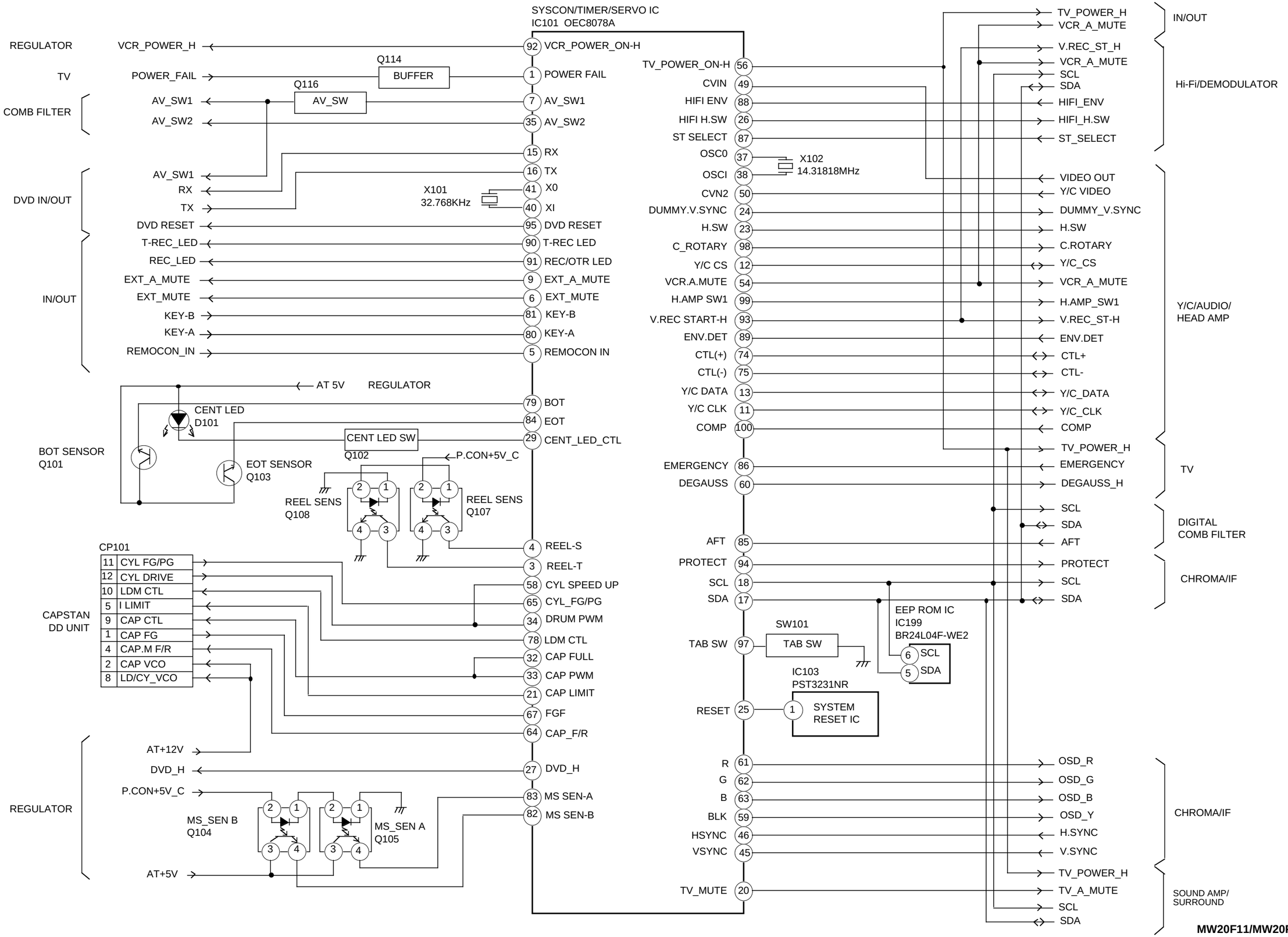
# DVD BLOCK DIAGRAM



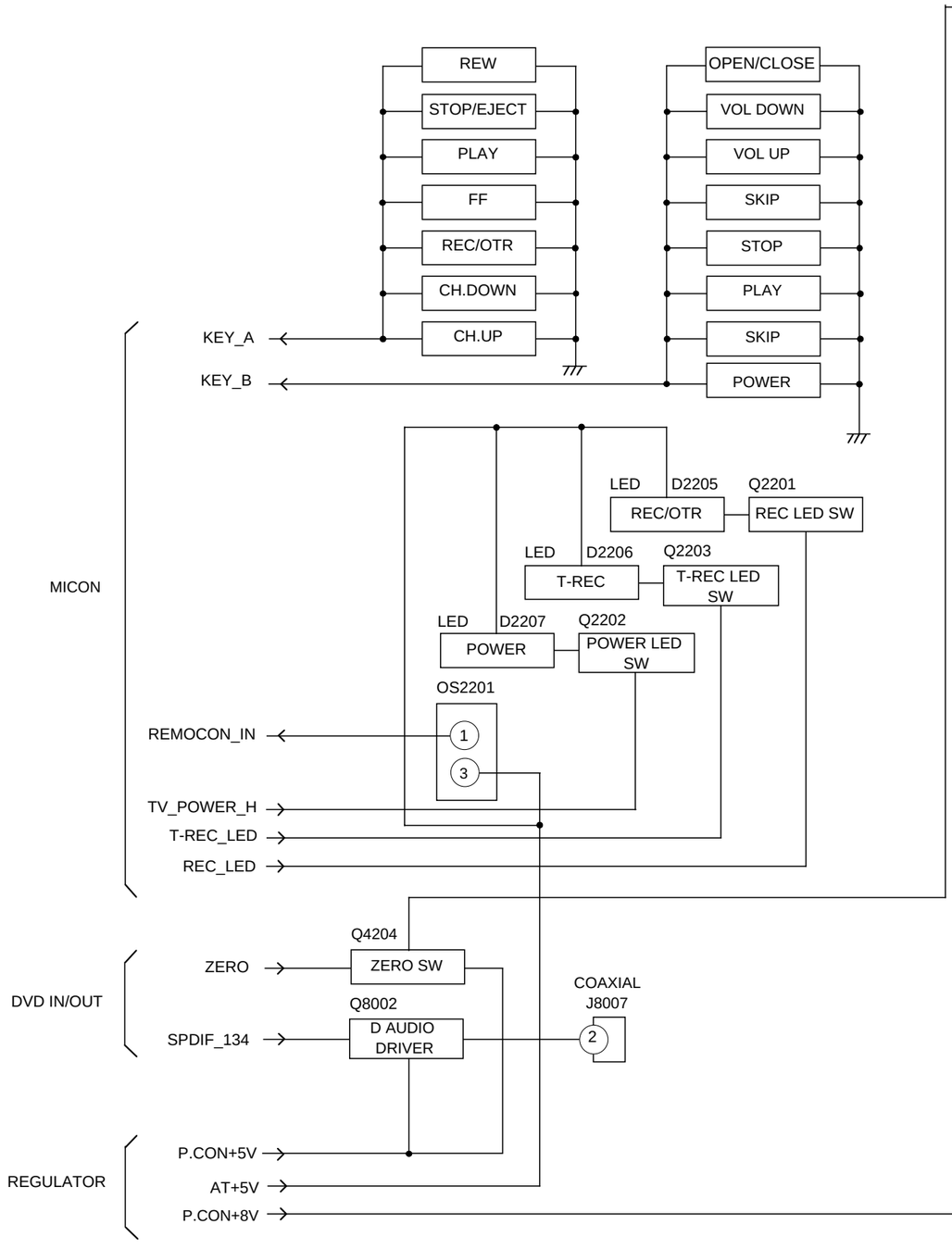
# Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM

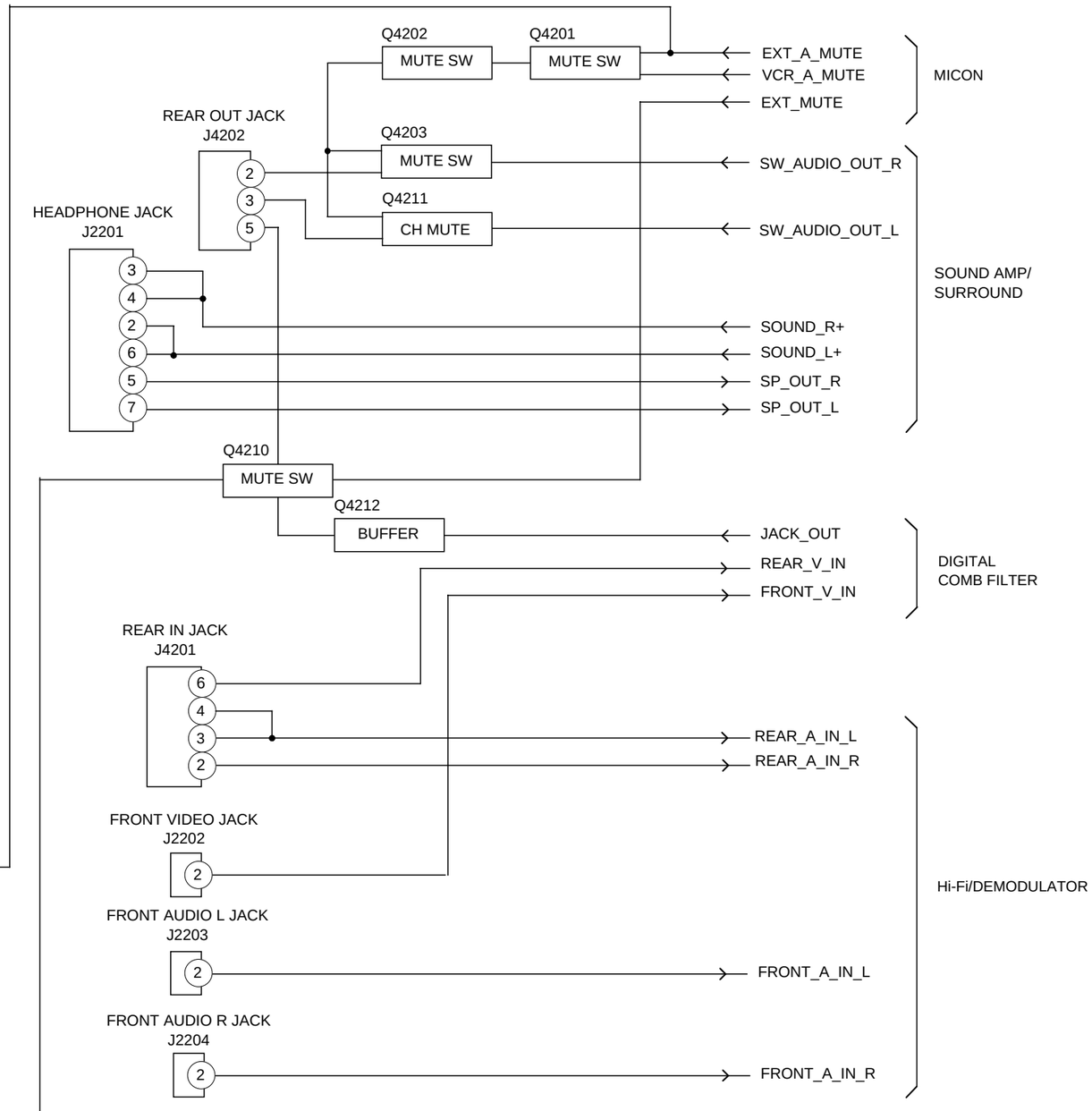


# MICON BLOCK DIAGRAM

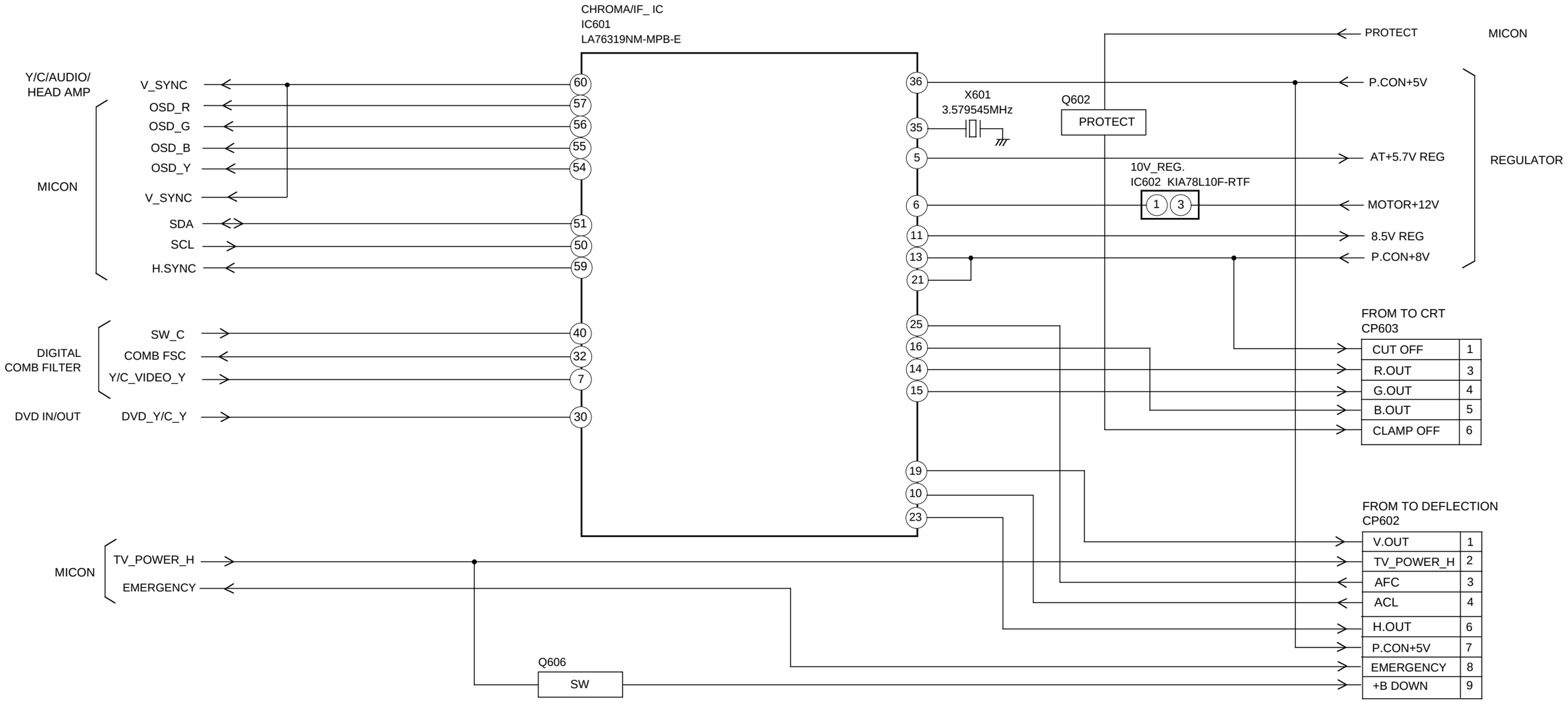


# IN/OUT BLOCK DIAGRAM

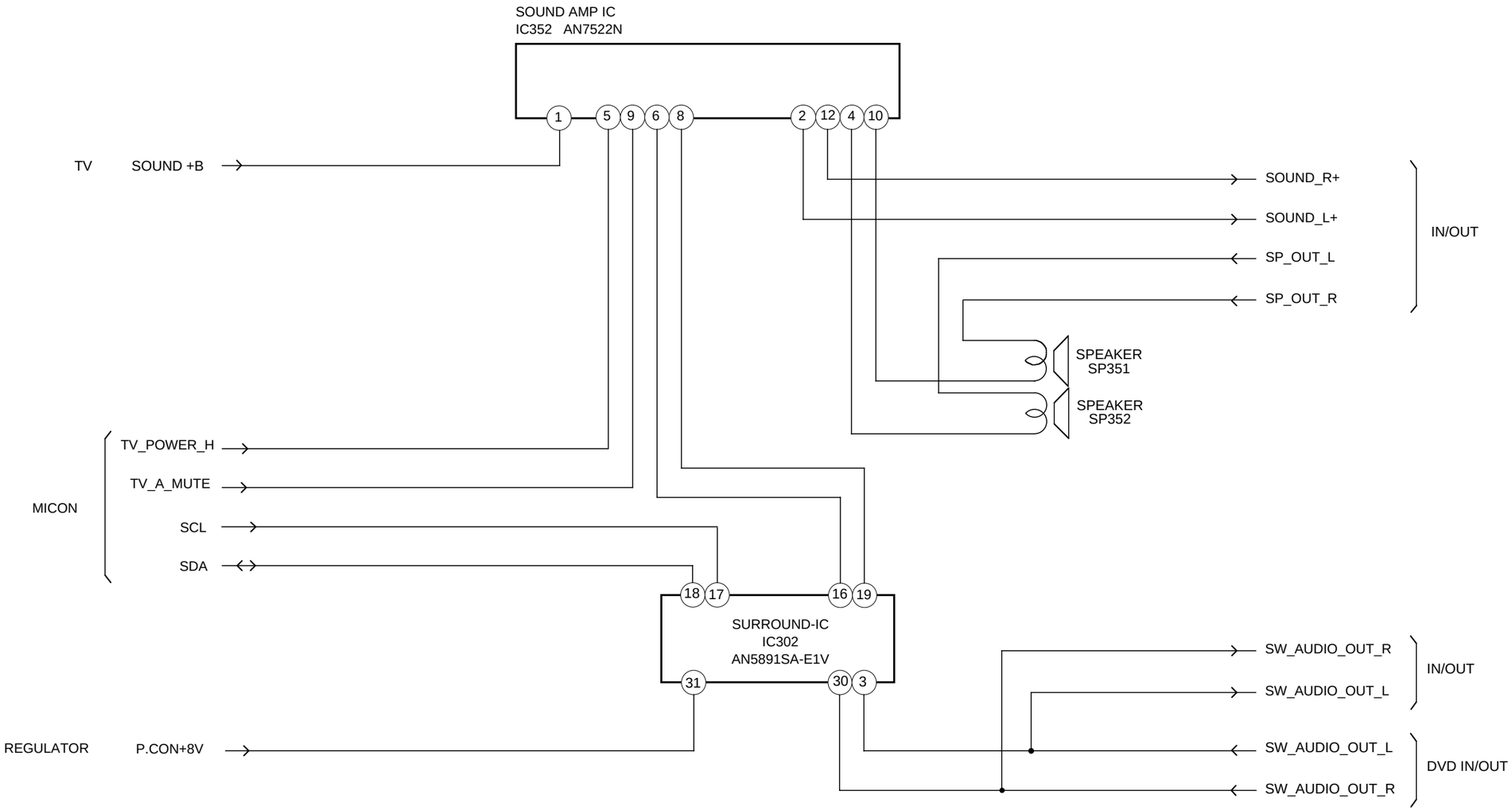


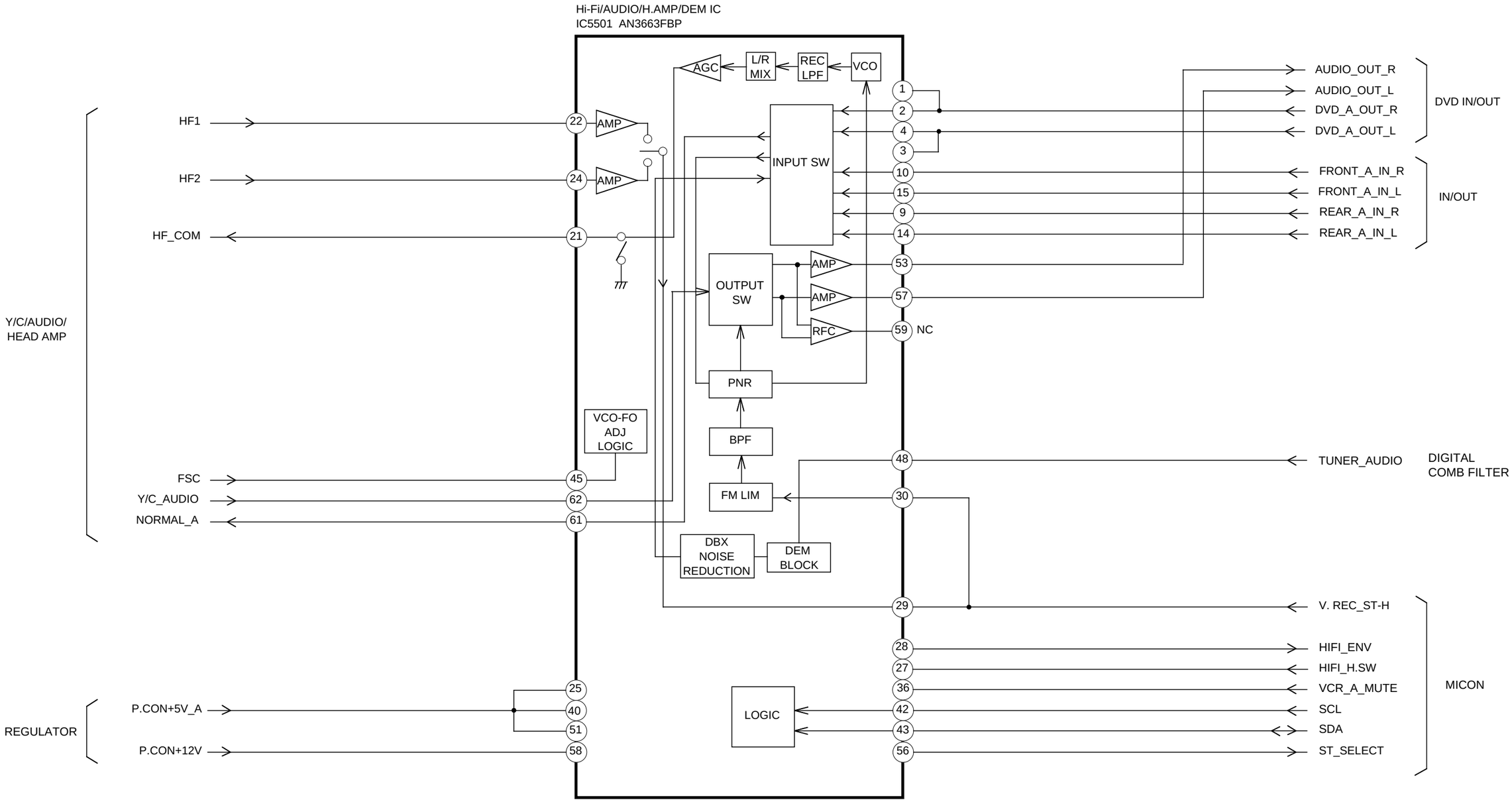
# CHROMA/IF BLOCK DIAGRAM



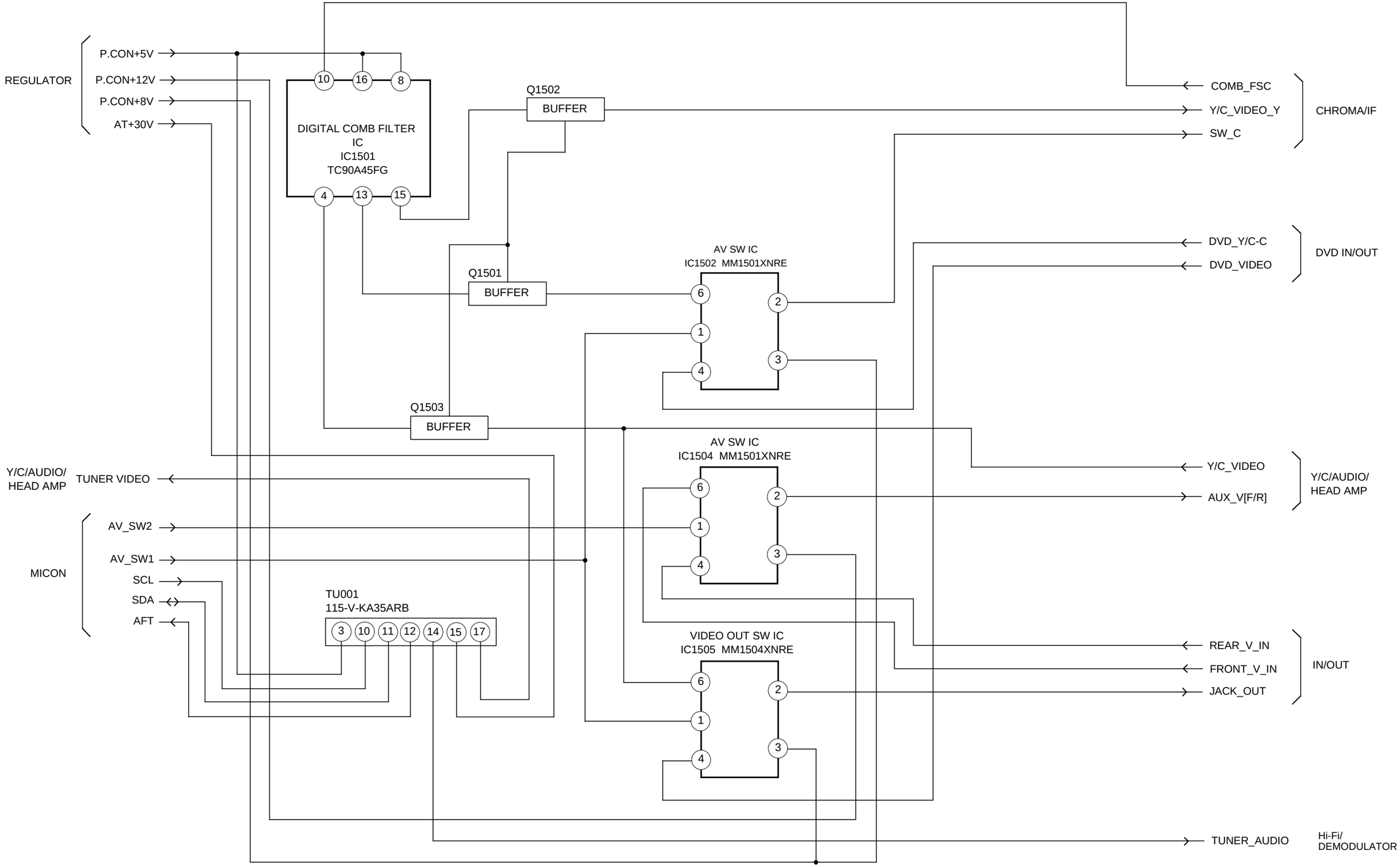
# SOUND AMP/SURROUND BLOCK DIAGRAM



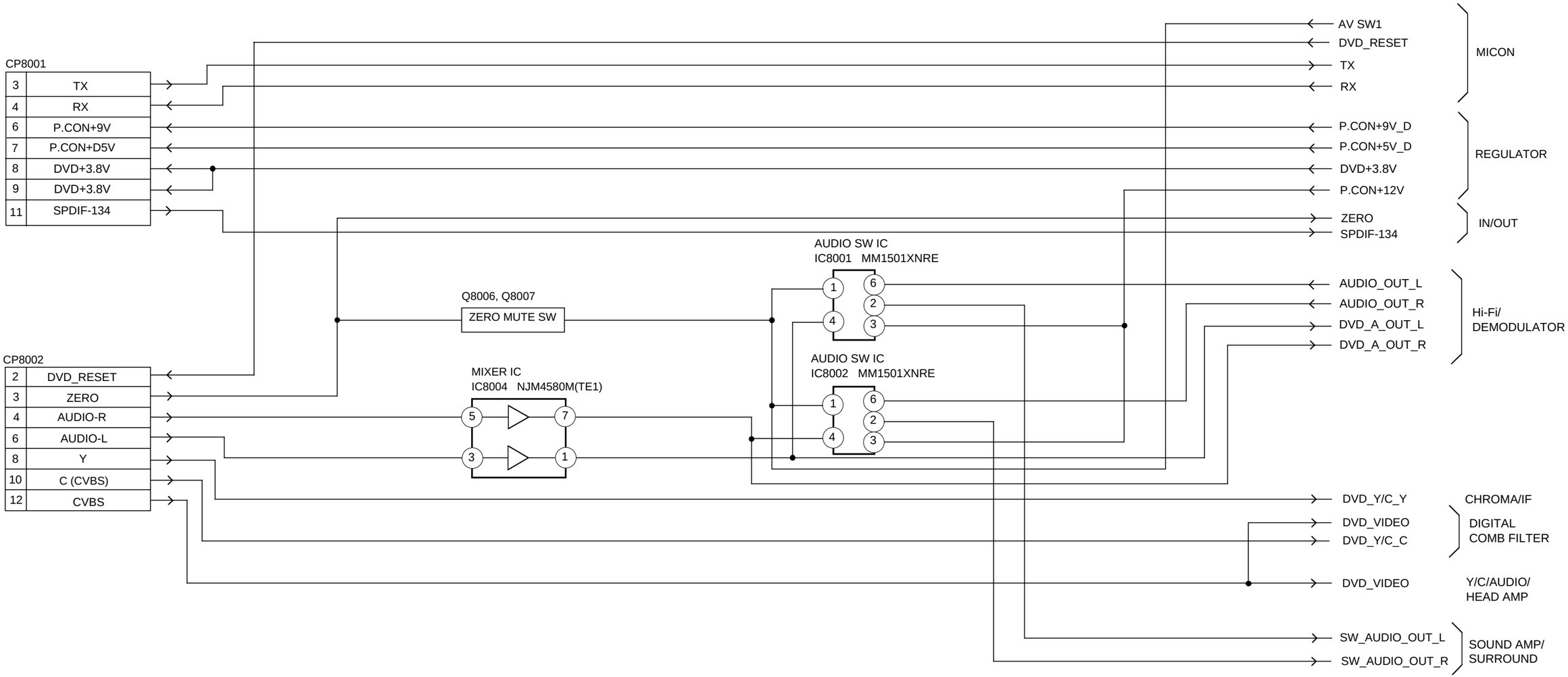
# Hi-Fi/DEMODULATOR BLOCK DIAGRAM



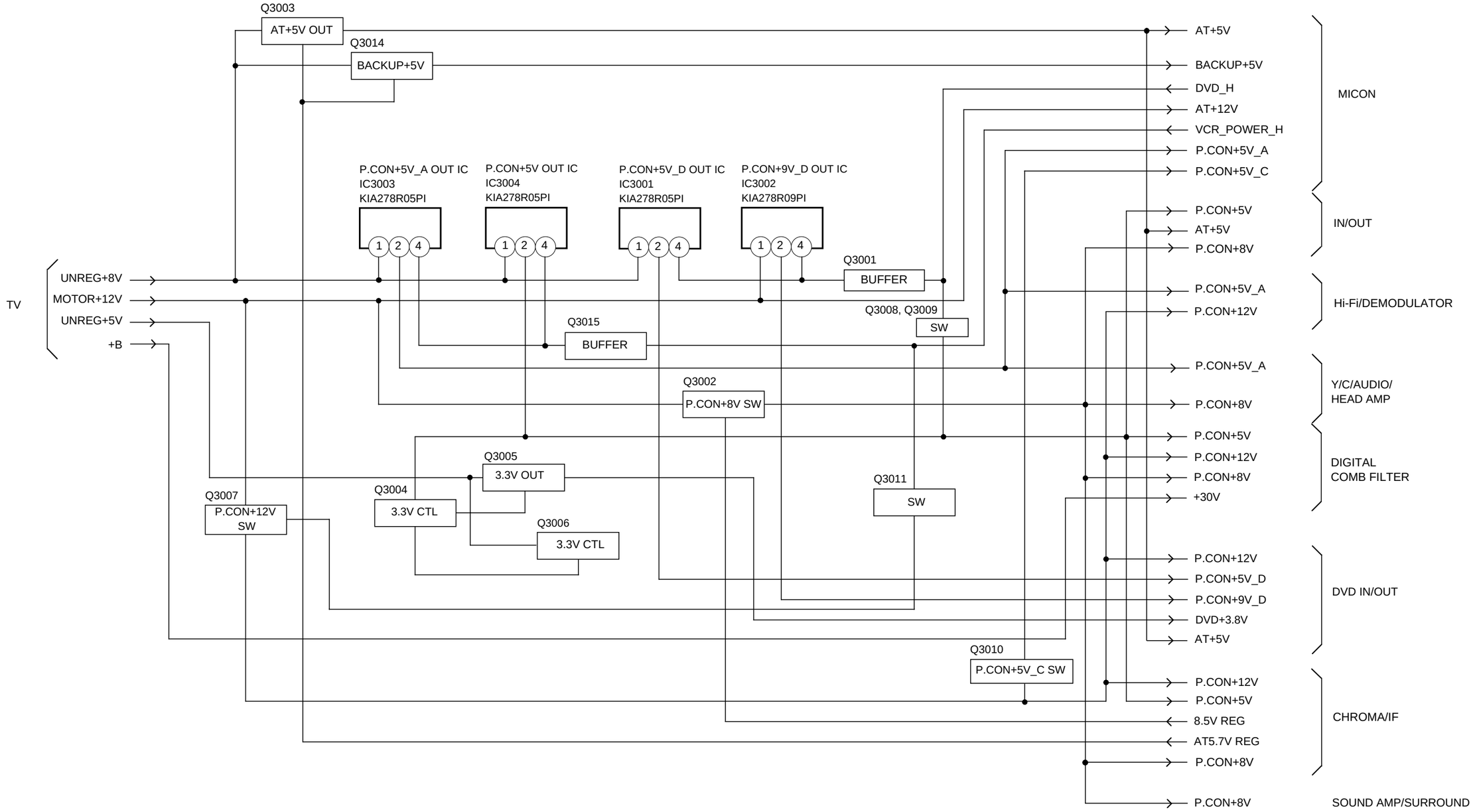
# DIGITAL COMB FILTER BLOCK DIAGRAM



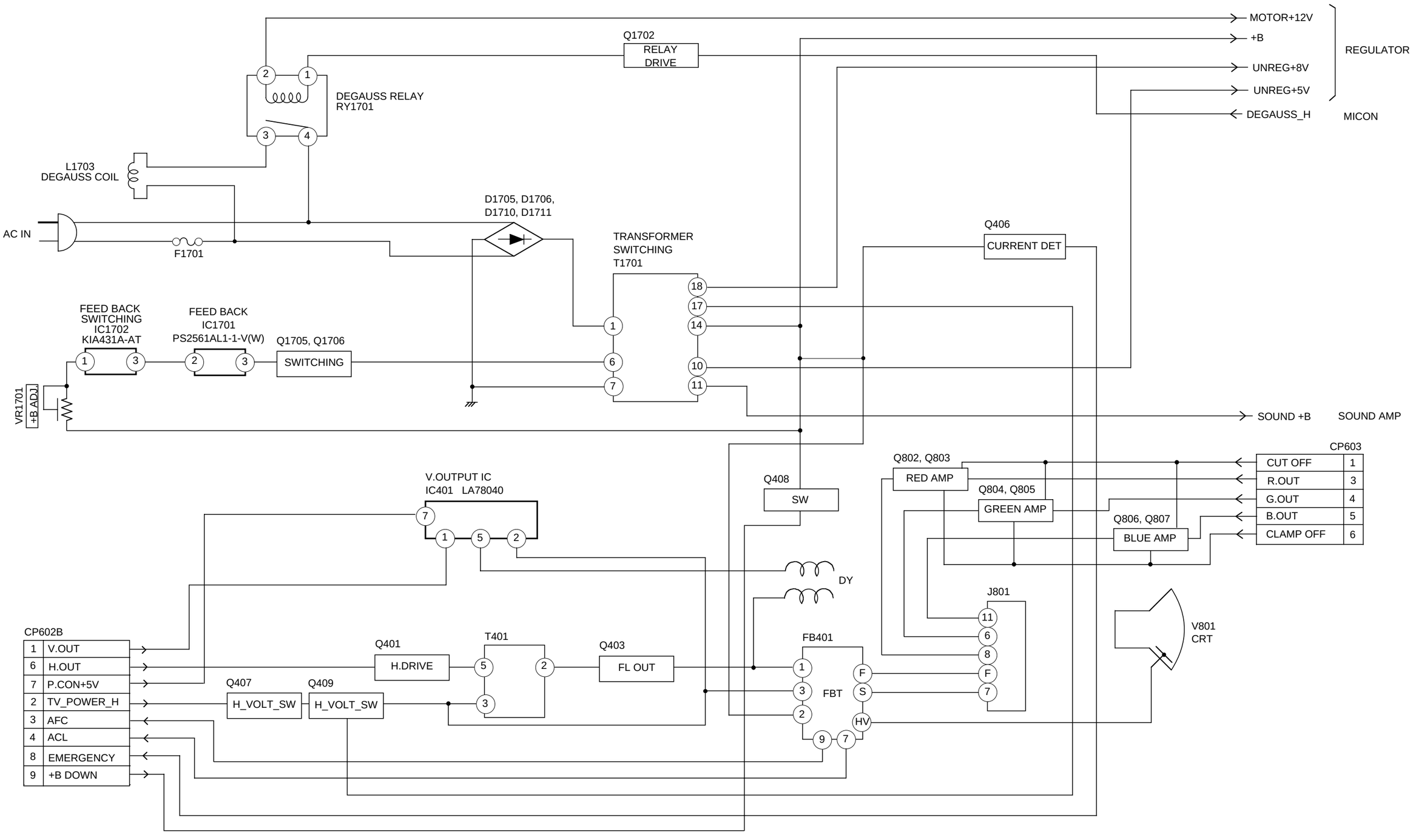
# DVD IN/OUT BLOCK DIAGRAM



# REGULATOR BLOCK DIAGRAM

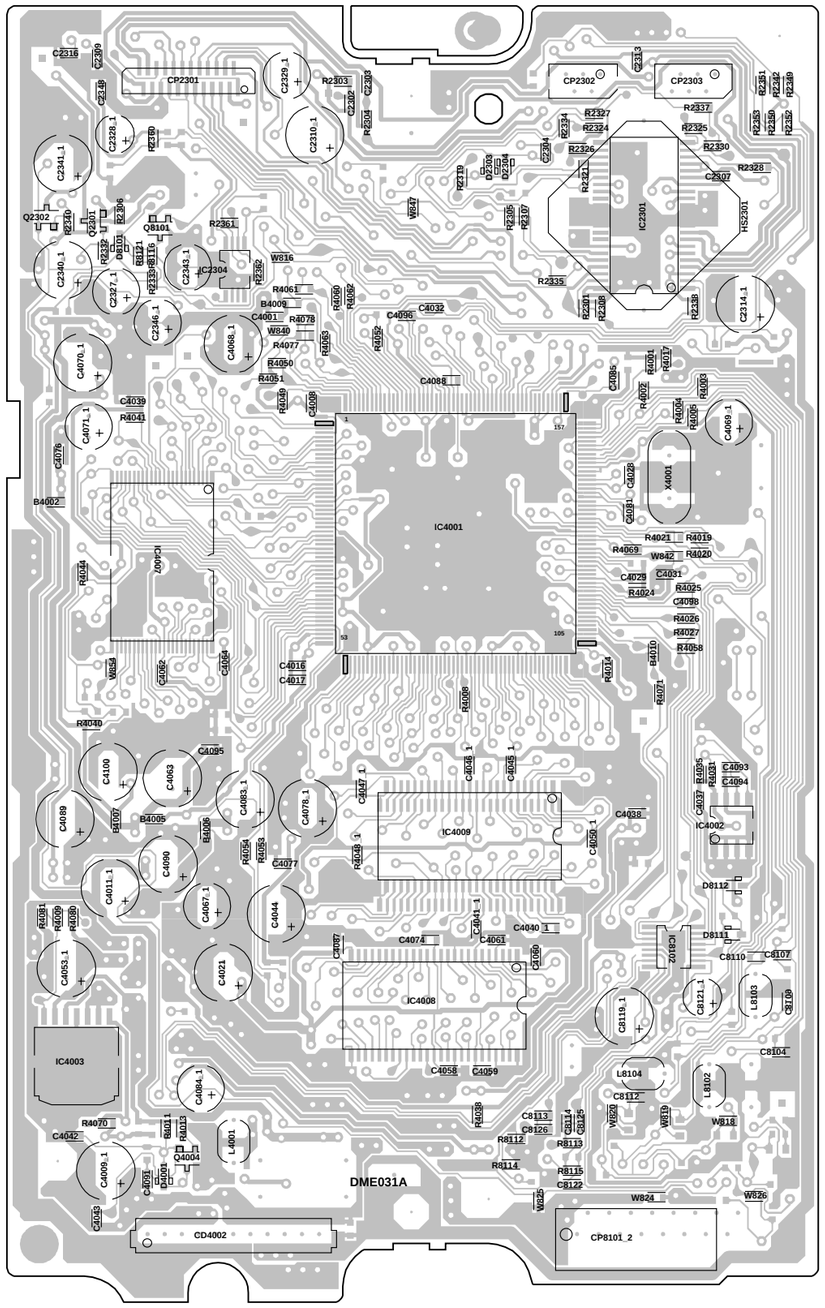


# TV BLOCK DIAGRAM

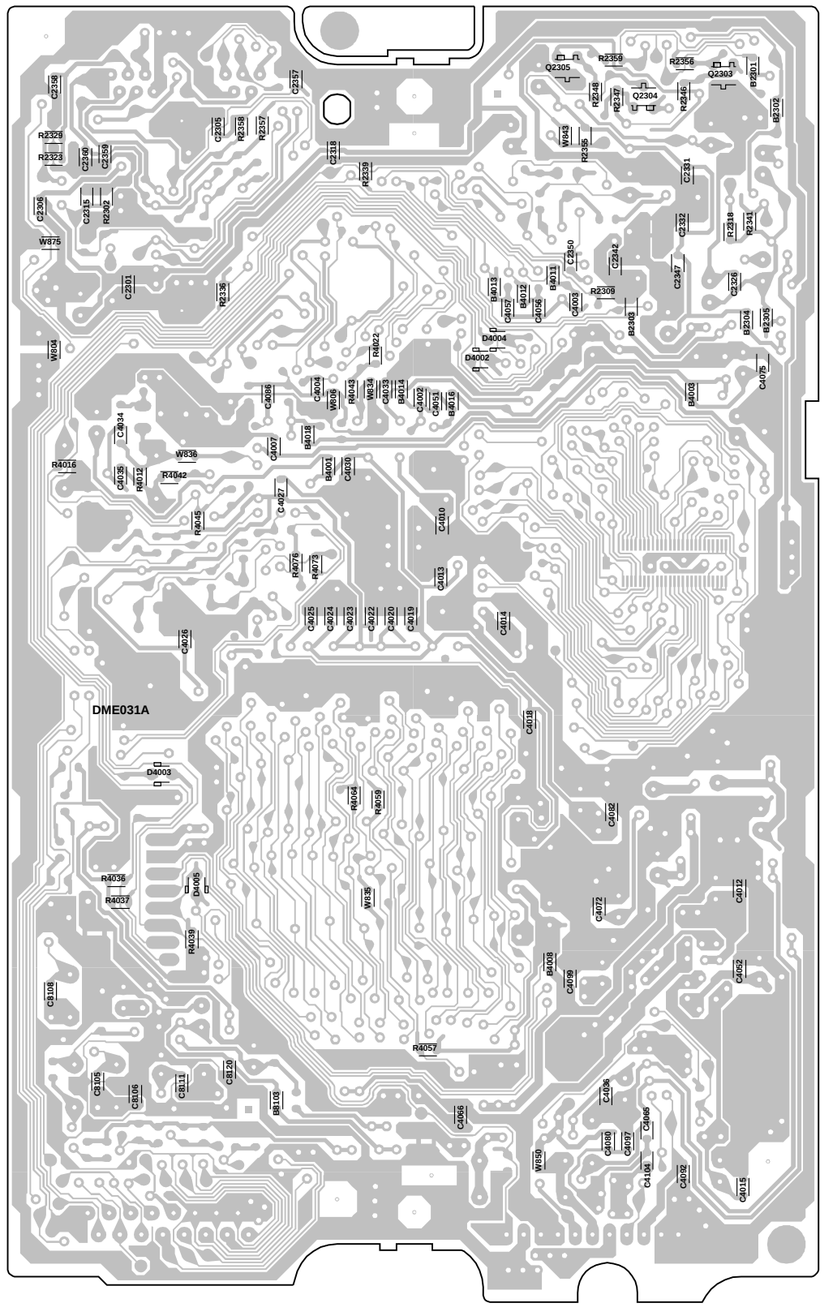


# PRINTED CIRCUIT BOARDS

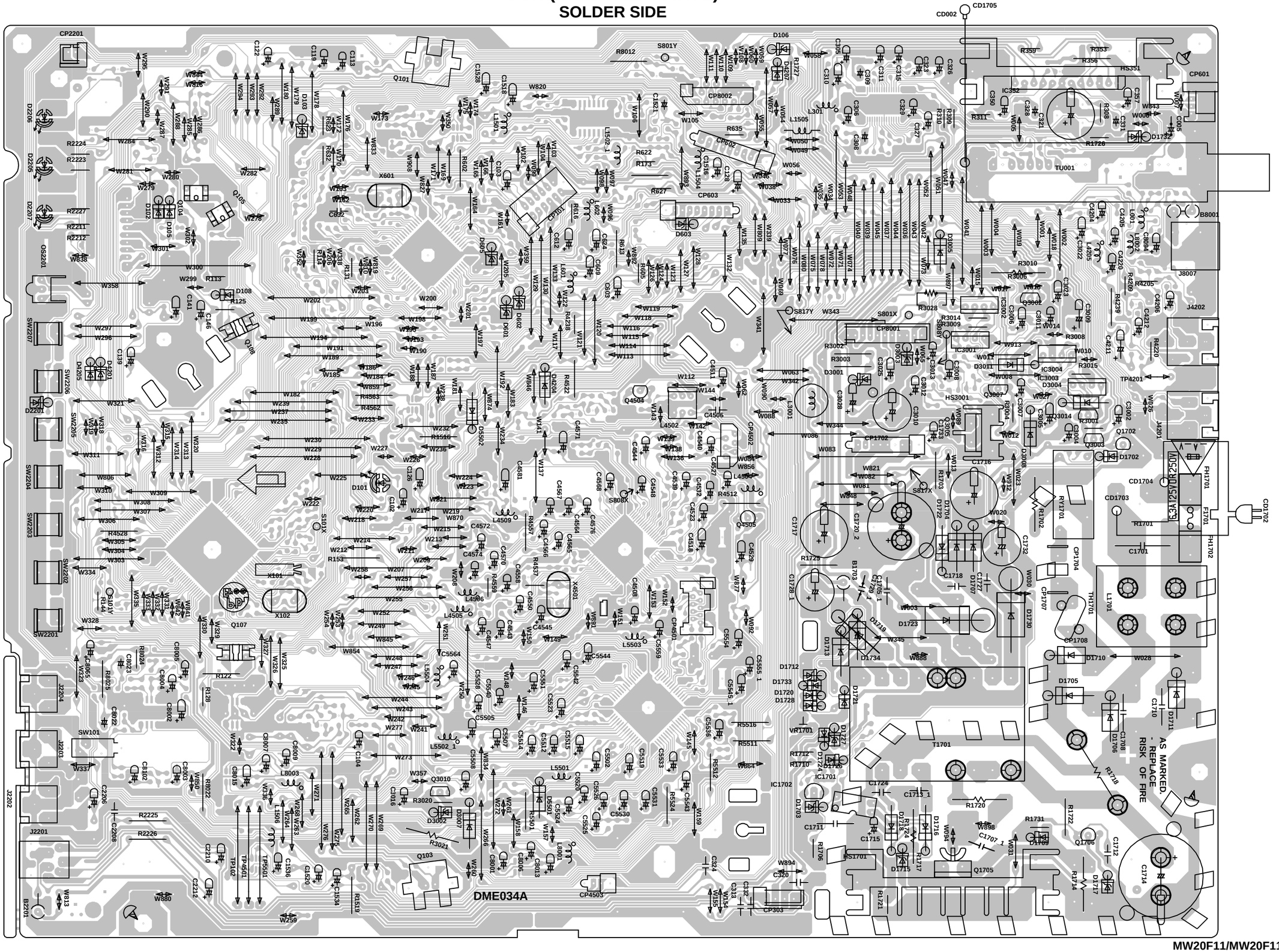
## DVD (TOP SIDE)




## DVD (BUTTOM SIDE)



# PRINTED CIRCUIT BOARDS
# VCR (INSERTED PARTS)
## SOLDER SIDE


DME034A
AS MARKED. - REPLACE RISK OF FIRE
CD002
CD1705
CP2201
CP601
CP602
CP603
CP8001
CP8002
CP1702
CP4503
CP4601
CP4602
CP303
TU001
B8001
J8007
J4202
J4201
TP4201
S801Y
S801X
S817Y
S817X
S808X
S101Y
S101X
IC352
IC3001
IC3002
IC3003
IC3004
IC1701
IC1702
Q1702
D1702
CD1704
CD1703
CD1702
FH1701
FH1702
F1701
RV1701
RV1702
T1701
TH1701
L1701
CP1704
CP1707
CP1708
D1710
W028
W894
W898
W896
W856
W888
W345
W344
W343
W342
W341
W821
W820
W810
W809
W808
W806
W2201
W2202
W2203
W2204
W2205
W2206
SW2201
SW2202
SW2203
SW2204
SW2205
SW2206
SW2207
SW101
OS2201
OS101
X601
X102
X101
X4501
Q1705
Q1706
Q3014
Q3007
Q3002
Q3003
Q4504
Q4505
Q101
Q103
Q105
Q106
Q107
Q104
Q3010
D1732
D1722
D1723
D1719
D1734
D1712
D1733
D1720
D1728
D1705
D1713
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D1707
D1730
D1711
D1703
D1701
D1702
D1704
D1708
D3001
D3002
D3003
D3004
D3007
D3008
D3011
D3014
D4201
D4202
D4203
D4204
D5502
D5501
D5504
D101
D102
D103
D105
D108
D106
D4207
D602
D603
D605
D8005
D4511
D4522
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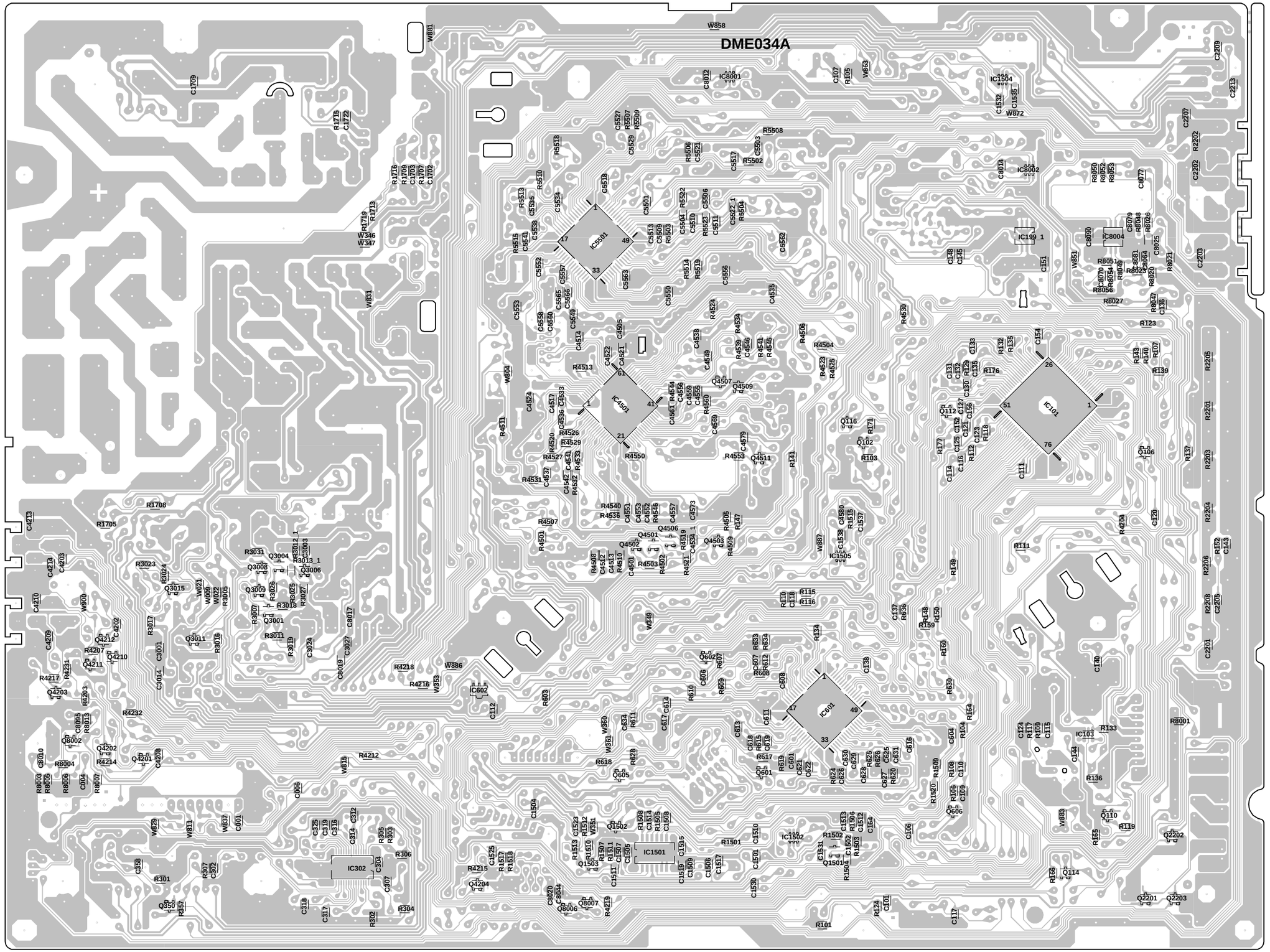
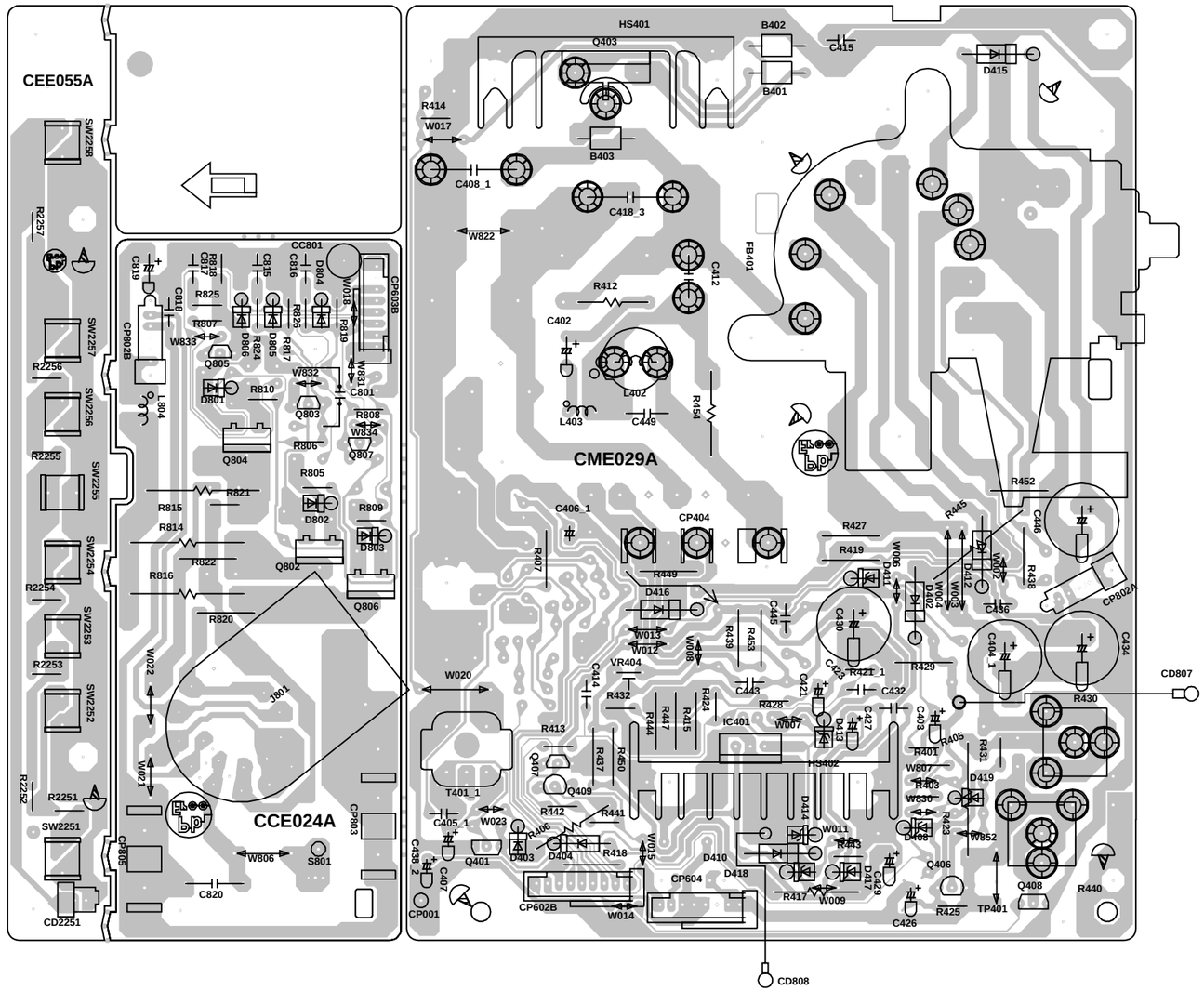
D4570
D4571
D4572
D4573
D4574
D4575
D4576
D4577
D4578
D4579
D4580

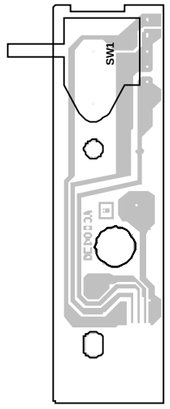
# PRINTED CIRCUIT BOARDS
# VCR (CHIP MOUNTED PARTS)
# SOLDER SIDE



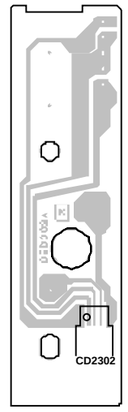
# PRINTED CIRCUIT BOARDS
# DEFLECTION/CRT/OPERATION
## SOLDER SIDE



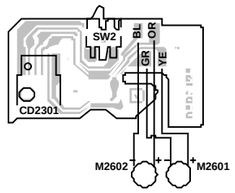
## LOADING MOTOR (INSERTED PARTS)
### SOLDER SIDE




## LOADING MOTOR (CHIP MOUNTED PARTS)
### SOLDER SIDE

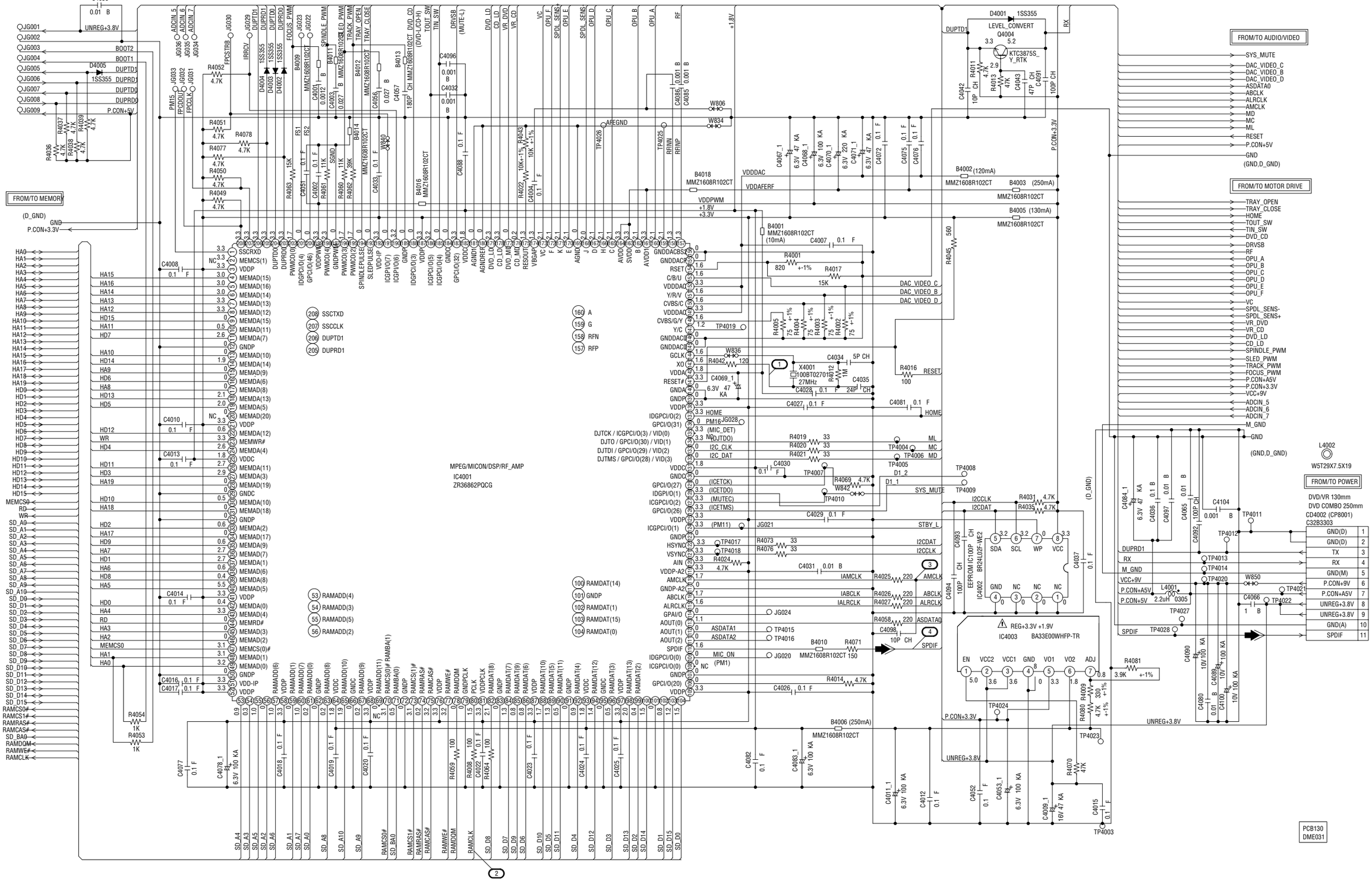



## SW
### SOLDER SIDE



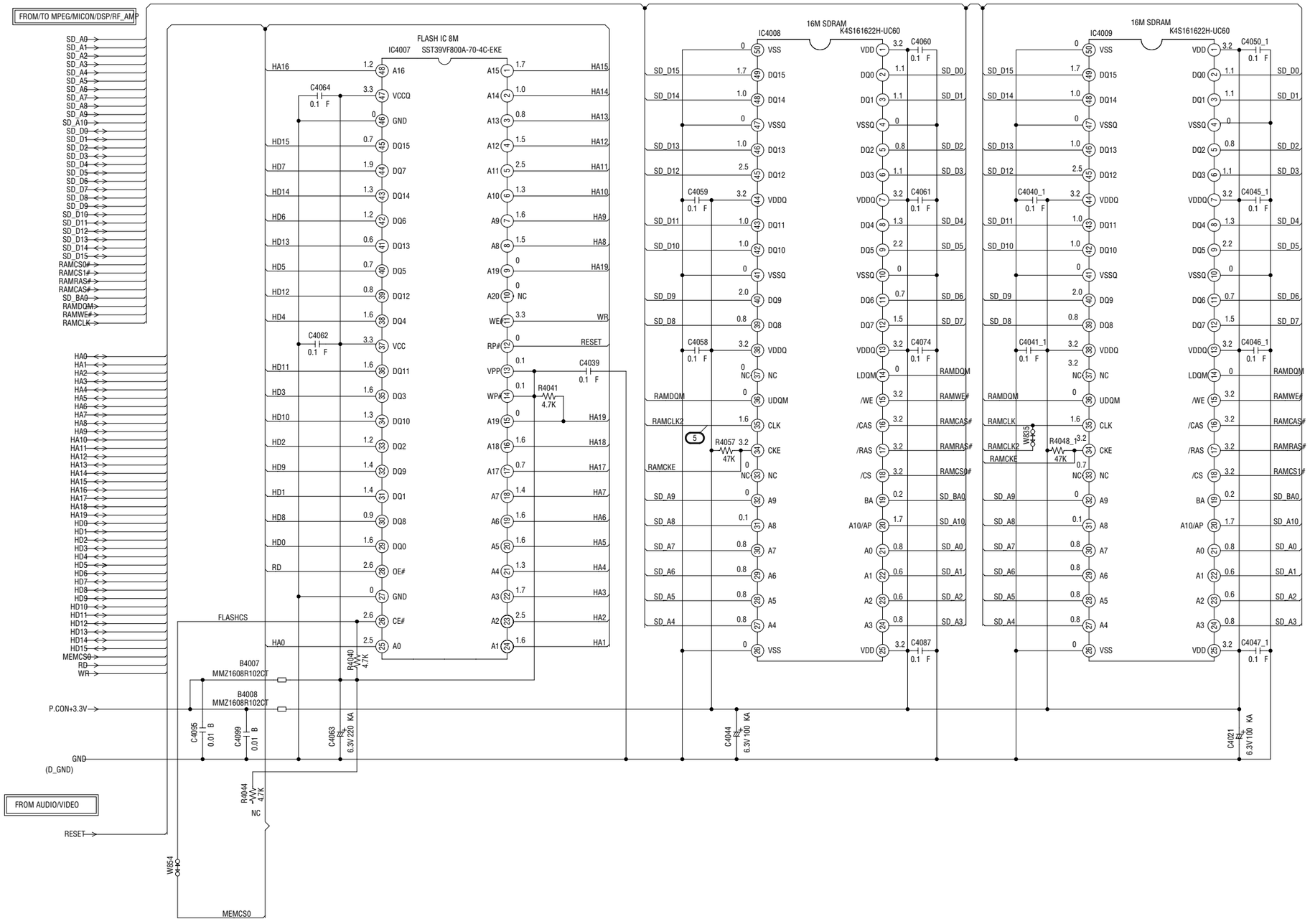
# MPEG/MICON/DSP/RF_AMP SCHEMATIC DIAGRAM

## (DVD PCB)



# MEMORY SCHEMATIC DIAGRAM

## (DVD PCB)




NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# MOTOR DRIVE SCHEMATIC DIAGRAM

## (DVD PCB)

DM3P(05SD)

FROM/TO LOADER

CP2301
09-5000-024-001-001

| | |
|---|---|
| 1 | GND |
| 2 | F |
| 3 | Vref |
| 4 | VCC |
| 5 | E |
| 6 | D |
| 7 | C |
| 8 | SW1(DVD/CD) |
| 9 | VRF(RF_OUT) |
| 10 | B |
| 11 | A |
| 12 | VR(DVD) |
| 13 | VR COM |
| 14 | VR(CD) |
| 15 | GND |
| 16 | LD(CD) |
| 17 | PD/GND |
| 18 | LD(DVD) |
| 19 | GND |
| 20 | NC |
| 21 | T DRV |
| 22 | T RTN |
| 23 | F DRV |
| 24 | F RTN |

CP2302
00_6232_005_006_800+

| | |
|---|---|
| 5 | LD- |
| 4 | LD+ |
| 3 | OPEN |
| 2 | GND(D) |
| 1 | CLOSE |

CP2303
00_6232_006_006_800+

| | |
|---|---|
| 6 | SW(GND) |
| 5 | LIMIT SW |
| 4 | SLD- |
| 3 | SLD+ |
| 2 | SP1- |
| 1 | SP1+ |

FROM AUDIO/VIDEO

CD_LD_CTL

FROM/TO MPEG/MICON/DSP/RF_AMP

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB130
DME031

# AUDIO/VIDEO SCHEMATIC DIAGRAM

(DVD PCB)

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| A | Y | G | CVBS | Y |
| B | V | R | Y | V |
| C | U | B | C | U |
| D | C | CVBS | CVBS | CVBS |

FROM/TO MPEG/MICON/DSP/RF_AMP

DAC_VIDEO_G
DAC_VIDEO_B
DAC_VIDEO_D
P.CON+5V
DAC_VIDEO_C
DAC_VIDEO_B
DAC_VIDEO_D
C/B/U
Y/R/V
CVBS/C
W818
W819
W820
C8105 12P CH L8102 1uH 0305 C8104 150P CH C8106 150P CH
C8108 12P CH L8103 1uH 0305 C8107 150P CH C8109 150P CH
C8111 12P CH L8104 1uH 0305 C8110 100P CH C8112 33P CH
8 9 10
DAC_C_VIDEO
DAC_B_VIDEO
DAC_D_DVD_VIDEO

RESET
MC
MD
ML
AMCLK
ABCLK
ALRCLK
ASDATA0
SYS_MUTE
GND
(GND,D_GND)
(D_GND)

TO MEMORY
RESET

TO MOTOR DRIVER
CD_LD_CTL

B8103 MMZ1608R102CT
C8120 0.1 F
C8119_1 6.3V 100 KA
R8114 100K
R8115 100K
C8114 1 B
C8125 1 B
C8113 1 B
C8126 1 B
R8113 470
R8112 470
6
7

STEREO DAC IC IC8102 PCM1753DBQR
VOUTR VOUTL VCC VDD DGND LRCK DATA BCK
AGND VCOM ZERO/ZEROA ZEROL/NA MD MC ML SCK
C8121_1 25V 10 KA
ZERO MD MC ML AMCLK ABCLK ASDATA0 ALRCLK

P.CON+A5V
R8116 560
R8121 VR 560
CD_LD_CTL
D8101 1SS355
CD_CONTROL
Q8101 DTC124EKA
0.7
3.2
0
(RF_GND)

TP8102 NC
TP8103 NC
TP8104 NC
TP8105 NC
TP8101
W825
W826
TP8106
TP8107
TP8108
RESET
ZERO
D8111 1SS355
W824
TP8109
TP8110
TP8111
TP8112
TP8113
TP8114
R_AUDIO
L_AUDIO
DAC_B_VIDEO
DAC_C_VIDEO
DAC_D_DVD_VIDEO
SYS_MUTE
D8112 1SS355
C8122 0.001 B

FROM/TO TUNER/JACK
FFC(1.0mm pitch)
CD8101
2H0C2204
DVD/VR 95mm
CP8101_2
IMSA-9604S-12F

| | |
|---|---|
| DVD-H(GND) | 12 |
| DVD RESET | 11 |
| ZERO | 10 |
| AUDIO-R | 9 |
| GND | 8 |
| AUDIO-L | 7 |
| GND | 6 |
| Y | 5 |
| GND | 4 |
| C | 3 |
| GND | 2 |
| CVBS | 1 |

PCB130
DME031

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

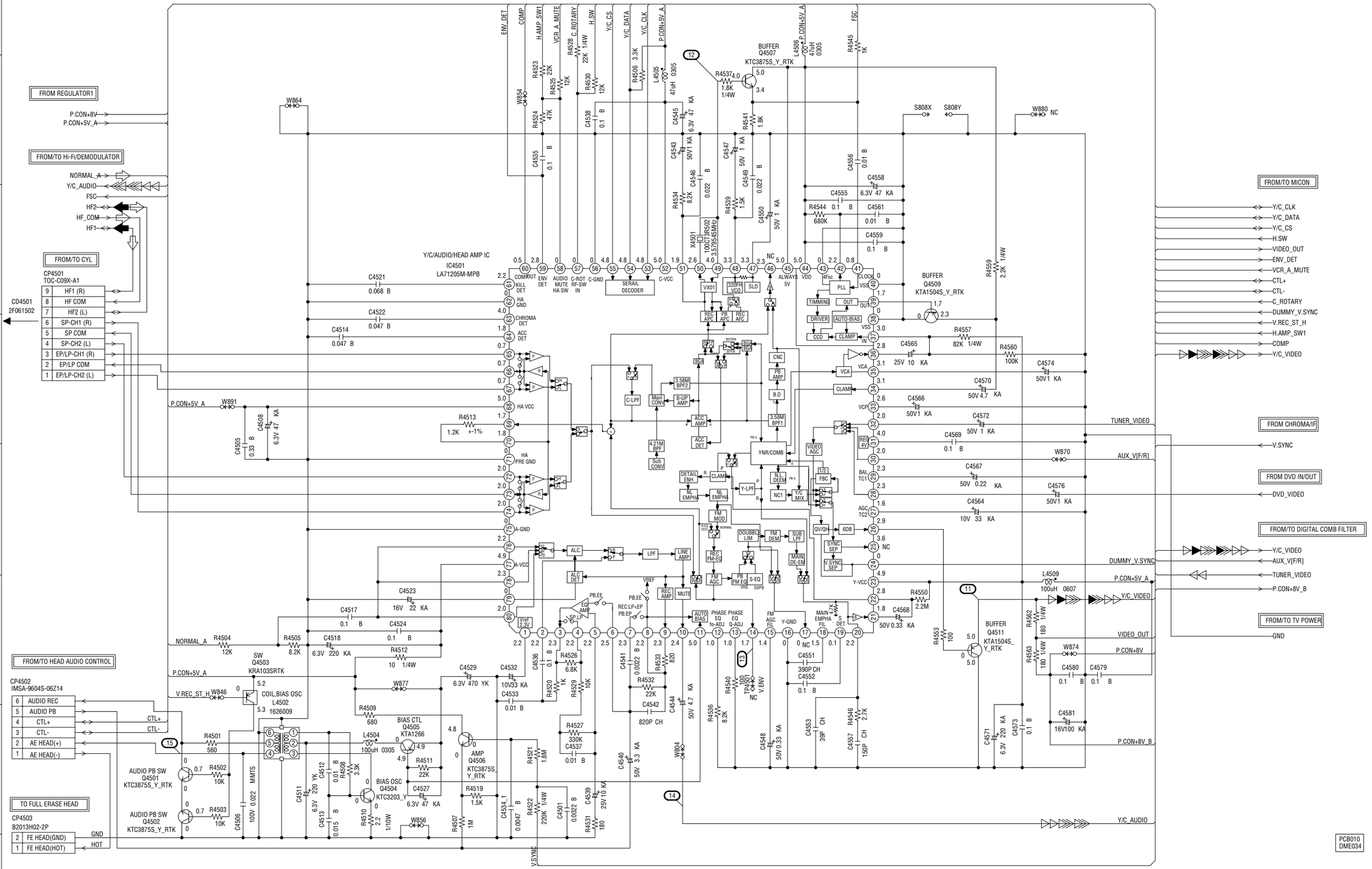
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

◀ AUDIO SIGNAL(PB)
◁ PLAYBACK COLOR SIGNAL
◀◀ R.SIGNAL + COMPONENT SIGNAL(U)
≪ B.SIGNAL + COMPONENT SIGNAL(V)

CAUTION: DIGITAL TRANSISTOR

# Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

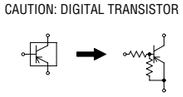
(VCR PCB)




NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR



- AUDIO SIGNAL(REC)
- AUDIO SIGNAL(PB)
- TUNER VIDEO SIGNAL
- RECORD LUMINANCE SIGNAL
- RECORD COLOR SIGNAL
- PLAYBACK COLOR SIGNAL
- PLAYBACK LUMINANCE SIGNAL

# MICON SCHEMATIC DIAGRAM (VCR PCB)

FROM/TO REGULATOR

BACKUP+5V
AT+5V
DVD_H
VCR_POWER_H
AT+12V
P.CON+5V_G
P.CON+5V_A

FROM/TO Y/C/AUDIO/HEAD.AMP

Y/C_VIDEO
Y/C_CLK
Y/C_DATA
Y/C_CS
H.SW
VIDEO_OUT
ENV_DET
VCR_A_MUTE
CTL+
CTL-
C_ROTARY
DUMMY_V.SYNC
V.REC_ST_H
H.AMP_SW1
COMP

FROM/TO CAPSTAN DD UNIT

CP101
TMC-J12P-B2

| | |
|---|---|
| 1 | CAP FG |
| 2 | CAP VCO |
| 3 | VCC |
| 4 | CAP.M F/R |
| 5 | I LIMIT |
| 6 | MOTOR GND |
| 7 | GND |
| 8 | LD/CY VCO |
| 9 | CAP CTL |
| 10 | LDM CTL |
| 11 | CYL FG/PG |
| 12 | CYL CTL |

SYSCON/TIMER/SERVO IC
IC101
OEC8078A

51: VDD2
52: AFCC
25:RESET
24:DUMMY.V.SYNC
98:C_ROTARY
99:H.AMP.SW1
100:COMP
76:CO
77: NC

FROM/TO DVD IN/OUT

TX
RX
DVD_RESET
AV_SW1

FROM/TO IN/OUT

KEY_B
KEY_A
REC_LED
T-REC_LED
REMOCON_IN
EXT_A_MUTE
VCR_A_MUTE
EXT_MUTE
TV_POWER_H

FROM/TO CHROMA/IF

OSD_R
OSD_G
OSD_B
OSD_Y
TV_POWER_H
V.SYNC
H_CONTROL
H.SYNC
SDA
SCL
VCR_POWER_H
PROTECT
IIC_OFF
EMERGENCY

FROM/TO Hi-Fi/DEMODULATOR

V.REC_ST_H
HIFI_ENV
HIFI_H.SW
VCR_A_MUTE
SDA
SCL
ST_SELECT

FROM/TO SOUND AMP/SURROUND

TV_POWER_H
TV_A_MUTE
SCL
SDA

FROM/TO DIGITAL COMB FILTER

COMB_GND
AV_SW1
AV_SW2
SDA
SCL
AFT

FROM/TO TV POWER

GND
DEGAUSS_H
POWER_FAIL
MOTOR_GND

PCB010
DME034

◀ PLAYBACK LUMINANCE SIGNAL
◁ PLAYBACK COLOR SIGNAL
◀◀ RECORD LUMINANCE SIGNAL
◁◁ CYLINDER APC SIGNAL
◀◀ CAPSTAN AFC SIGNAL
◁◁ RECORD COLOR SIGNAL

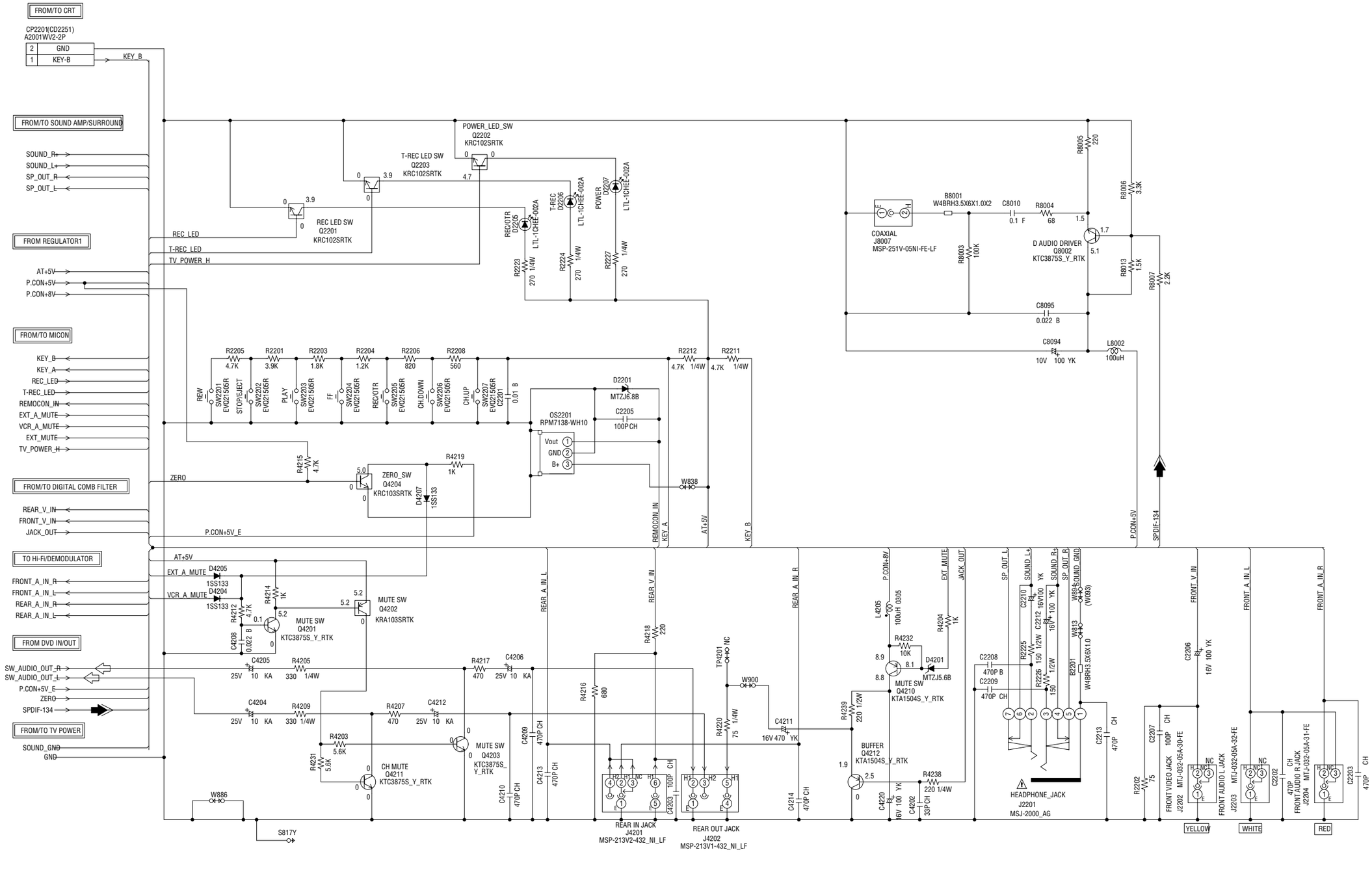
◀ R.SIGNAL
◀ G.SIGNAL
◁ B.SIGNAL

CAUTION: DIGITAL TRANSISTOR

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# IN/OUT SCHEMATIC DIAGRAM
## (VCR PCB)




NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

**ATTENTION**: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

**CAUTION**: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

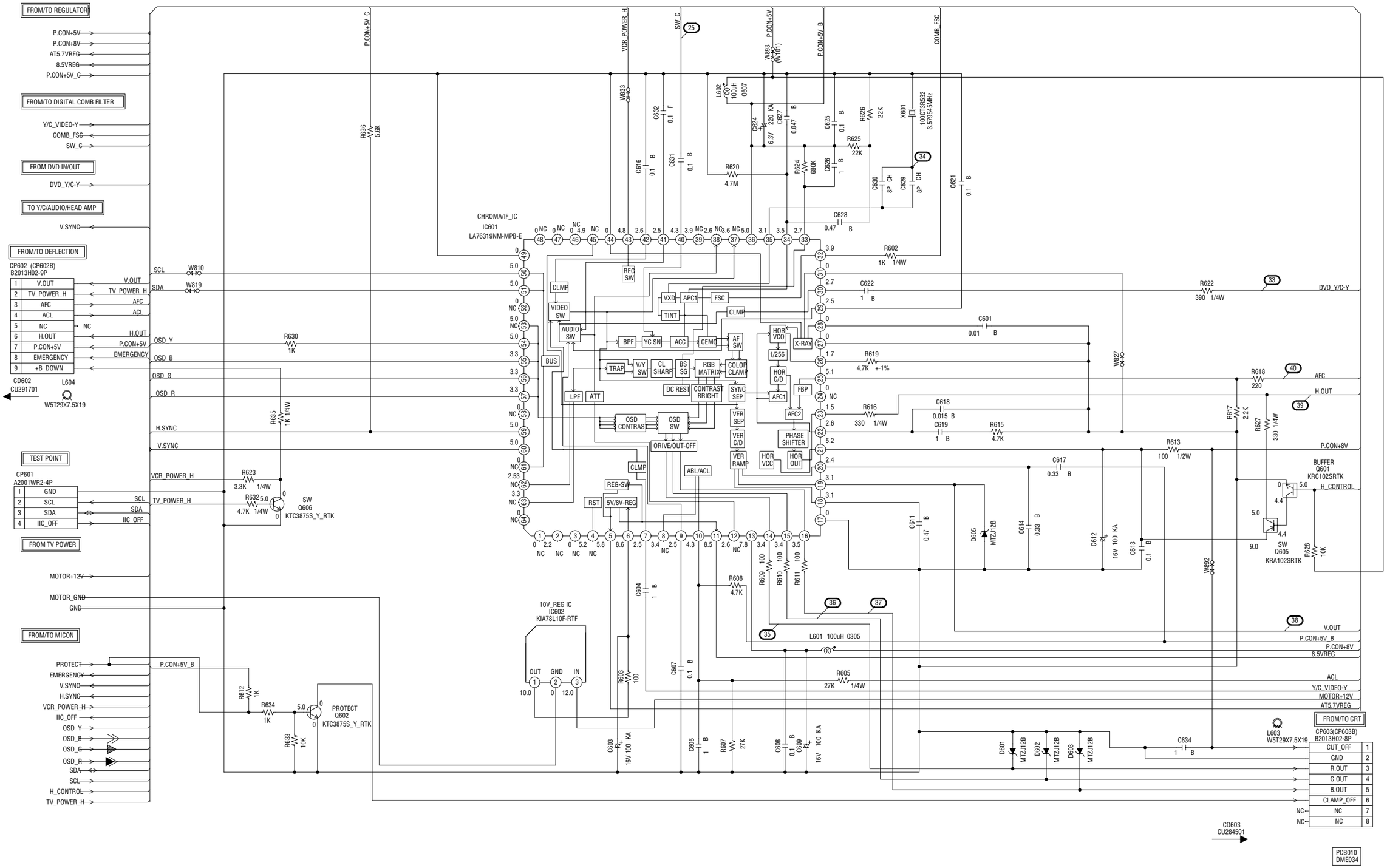
CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

AUDIO SIGNAL(REC)

DIGITAL AUDIO SIGNAL(PB)

# CHROMA/IF SCHEMATIC DIAGRAM (VCR PCB)

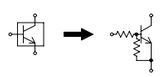



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

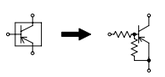
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CAUTION: DIGITAL TRANSISTOR



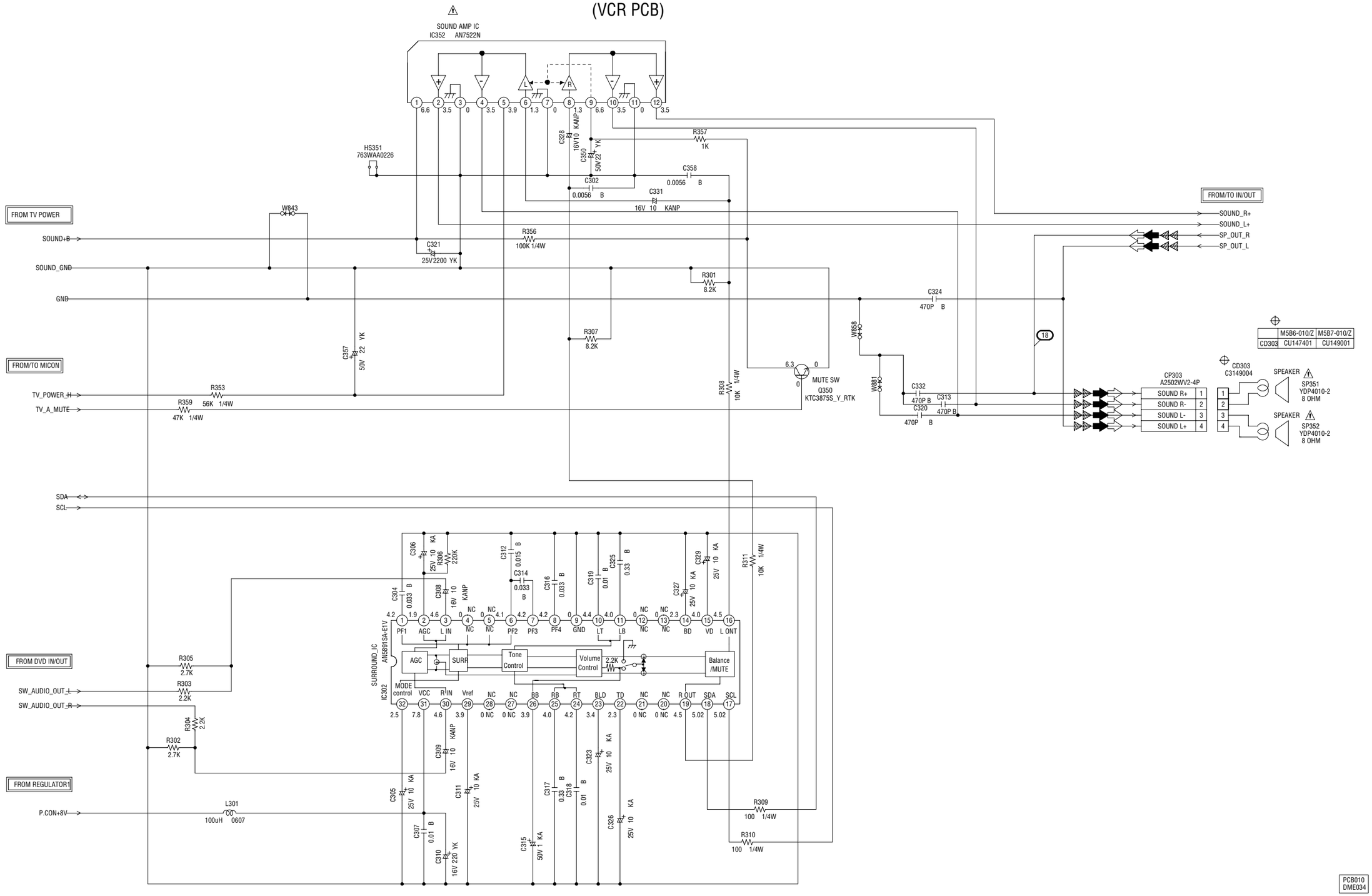
CAUTION: DIGITAL TRANSISTOR



◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

# SOUND AMP/SURROUND SCHEMATIC DIAGRAM

## (VCR PCB)




NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

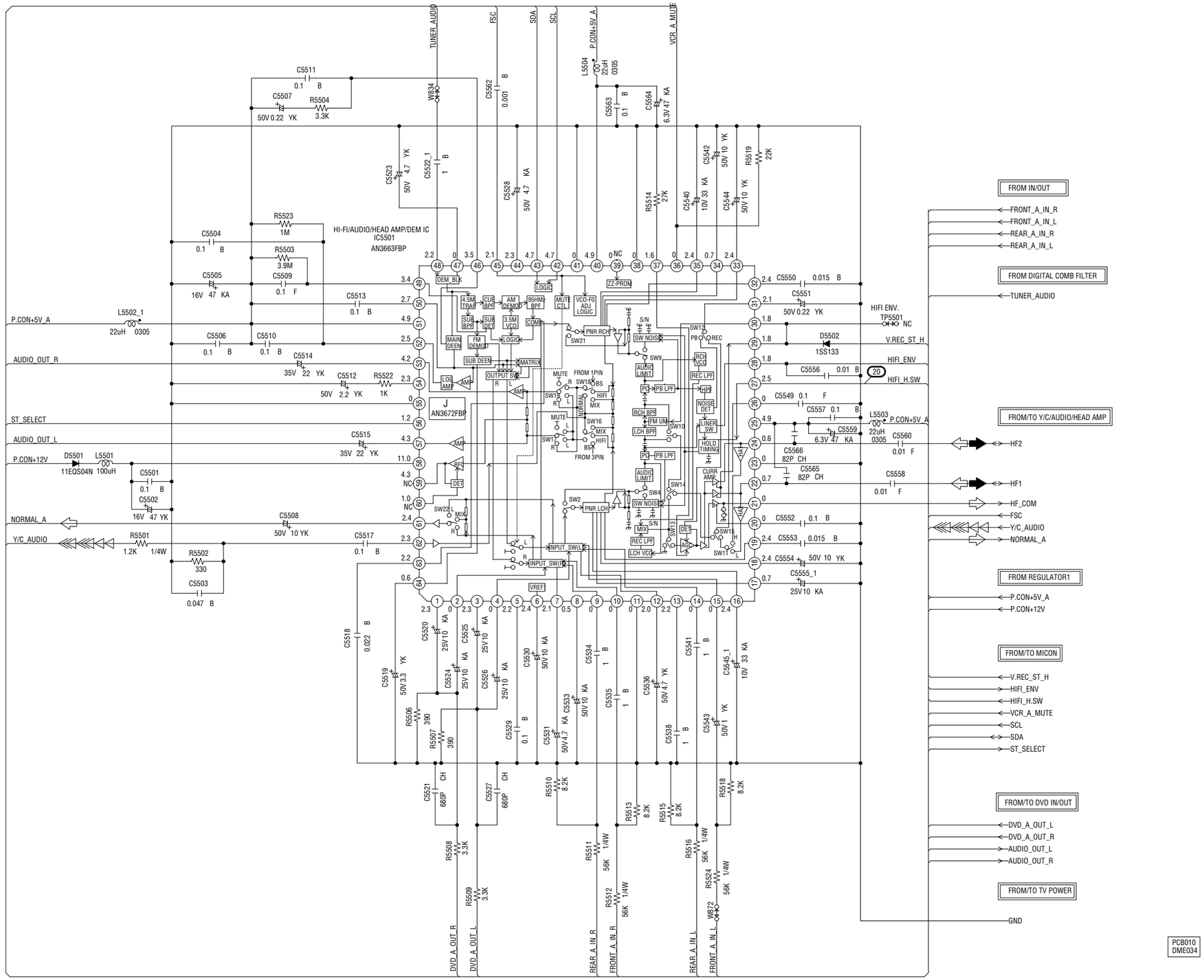
**ATTENTION**: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

TUNER AUDIO SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)

# Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

## (VCR PCB)



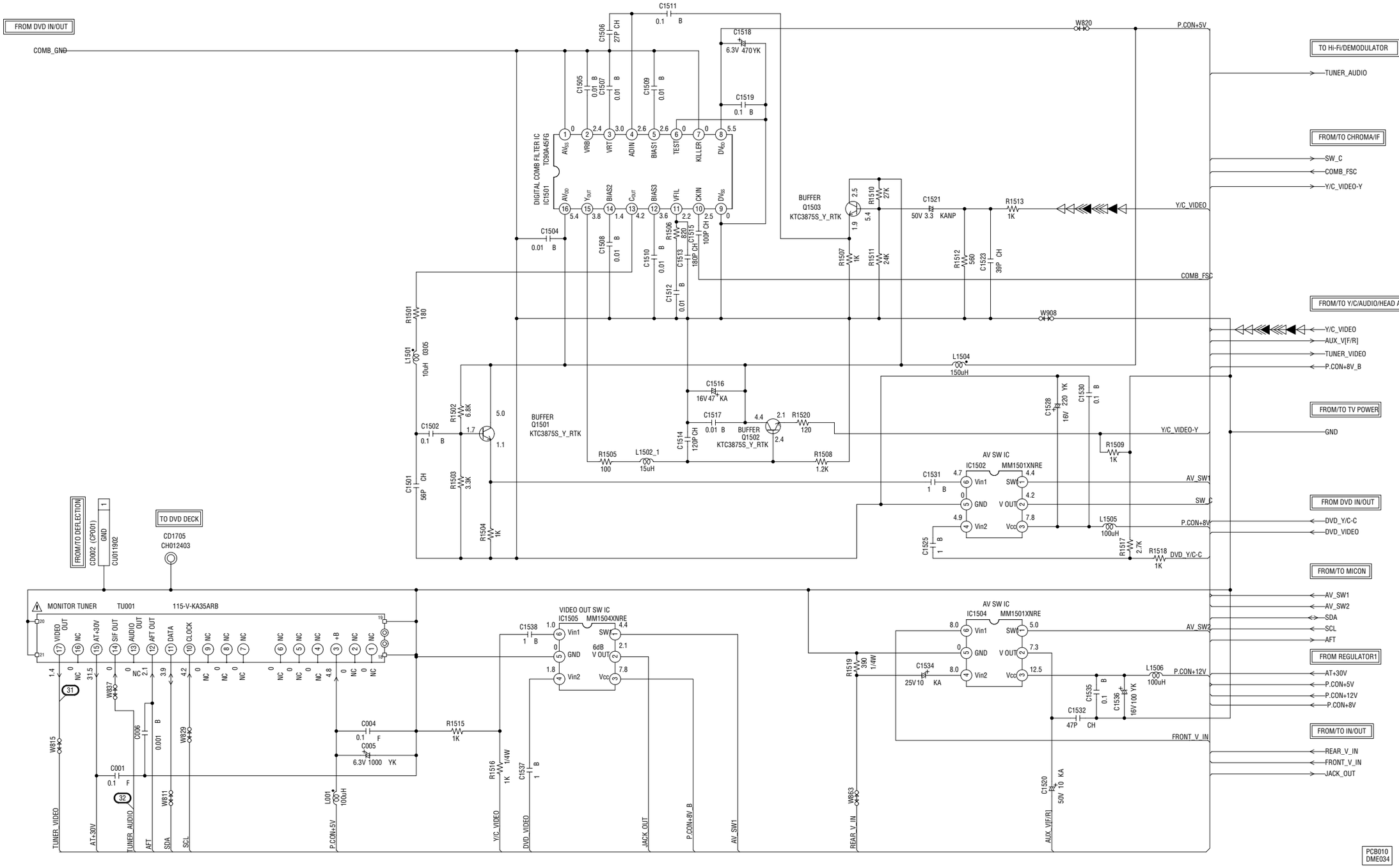

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
TUNER VIDEO SIGNAL
RECORD COLOR SIGNAL

# DIGITAL COMB FILTER SCHEMATIC DIAGRAM

(VCR PCB)

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**ATTENTION**: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

⋘◀ RECORD LUMINANCE SIGNAL
⋘ RECORD COLOR SIGNAL
◁ PLAYBACK COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◁◁ TUNER VIDEO SIGNAL

# DVD IN/OUT SCHEMATIC DIAGRAM

## (VCR PCB)

FROM/TO MPEG/MICON/DSP

CP8001 (CD8505) (CD4002)
A2001WV2-11P

| | |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | TX |
| 4 | RX |
| 5 | GND |
| 6 | P.CON+9V |
| 7 | P.CON+D5V |
| 8 | DVD+3.8V |
| 9 | DVD+3.8V |
| 10 | GND |
| 11 | SPDIF-134 |

W844 TX
W816 RX
C8019 56P CH
P.CON+9V_DH
P.CON+5V_D
DVD+3.8V
SPDIF-134
C8017 0.01 B
S801X S801Y
R8001 4.7K

FROM/TO AUDIO/VIDEO

CP8002 (CP8502)
IMSA-9604S-12Z14

| | |
|---|---|
| 12 | CVBS |
| 11 | GND |
| 10 | C(CVBS) |
| 9 | GND |
| 8 | Y |
| 7 | GND |
| 6 | AUDIO-L |
| 5 | GND |
| 4 | AUDIO-R |
| 3 | ZERO |
| 2 | DVD RESET |
| 1 | GND |

or
(DVD_H)

W887 DVD_VIDEO
DVD_Y/C-C
DVD_Y/C-Y
ZERO
DVD_RESET
C8020 100P CH
C8044 0.1 B

ZERO MUTE SW
Q8007
KRC103SRTK
ZERO MUTE SW
Q8006
KTC3875S_Y_RTK
R8012 4.7K 1/4W
P.CON+12V
R8022 10 1/4W

AV_SW1
AUDIO_OUT_L
C8001 25V 10 KA
AUDIO SW IC
IC8001 MM1501XNRE
Vin1 SW1
GND V OUT
Vin2 Vcc
L8001 100uH 0305
C8012 0.1 B
C8013 16V 100 YK
C8006 25V10 KA
AUDIO_OUT_R
C8009 25V 10 KA
AUDIO SW IC
IC8002 MM1501XNRE
C8007 25V10 KA
L8003 100uH 0305
C8014 0.1 B
C8015 16V 100 KA
AT+5V
P.CON+5V_E

C8090 0.1 F
C8002 16V 220 YK
C8005 50V 2.2 KA
C8070 820P CH
R8054 8.2K
R8056 3.9K
R8023 10K
R8049 10K
C8081 100P CH
R8051 12K
C8004 16V 22 KA
W851
29
R8027 1K
R8020 4.7K
C8023 50V 2.2 NA
R8024 100K 1/4W
MIXER IC
IC8004
NJM4580M(TE1)
A_GND
VCC
R8021 4.7K
C8022 50V 2.2 NA
R8025 100K 1/4W
30
R8047 1K
C8077 820P CH
C8003 16V 22 KA
W850
C8064 820P CH
C8065 10V 33 KA
R8026 10K
R8048 10K
R8050 12K
R8052 8.2K
R8053 3.9K
C8025 820P CH
C8079 100P CH
C8102 50V 2.2 KA

DVD_A_OUT_L
DVD_A_OUT_R

TO SOUND AMP/SURROUND
SW_AUDIO_OUT_L
SW_AUDIO_OUT_R

TO IN/OUT
SW_AUDIO_OUT_L
SW_AUDIO_OUT_R
ZERO
SPDIF-134
P.CON+5V_E

TO DIGITAL COMB FILTER
DVD_Y/C-C
DVD_VIDEO

TO CHROMA/IF
DVD_Y/C-Y

FROM/TO MICON
TX
RX
DVD_RESET
AV_SW1

FROM/TO TV POWER
GND

FROM REGULATOR1
DVD+3.8V
P.CON+5V_D
P.CON+12V
P.CON+9V_DH
AT+5V

TO Y/C/AUDIO/HEAD AMP
DVD_VIDEO

FROM/TO Hi-Fi/DEMODULATOR
DVD_A_OUT_L
DVD_A_OUT_R
AUDIO_OUT_L
AUDIO_OUT_R

PCB010
DME034

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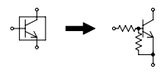
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

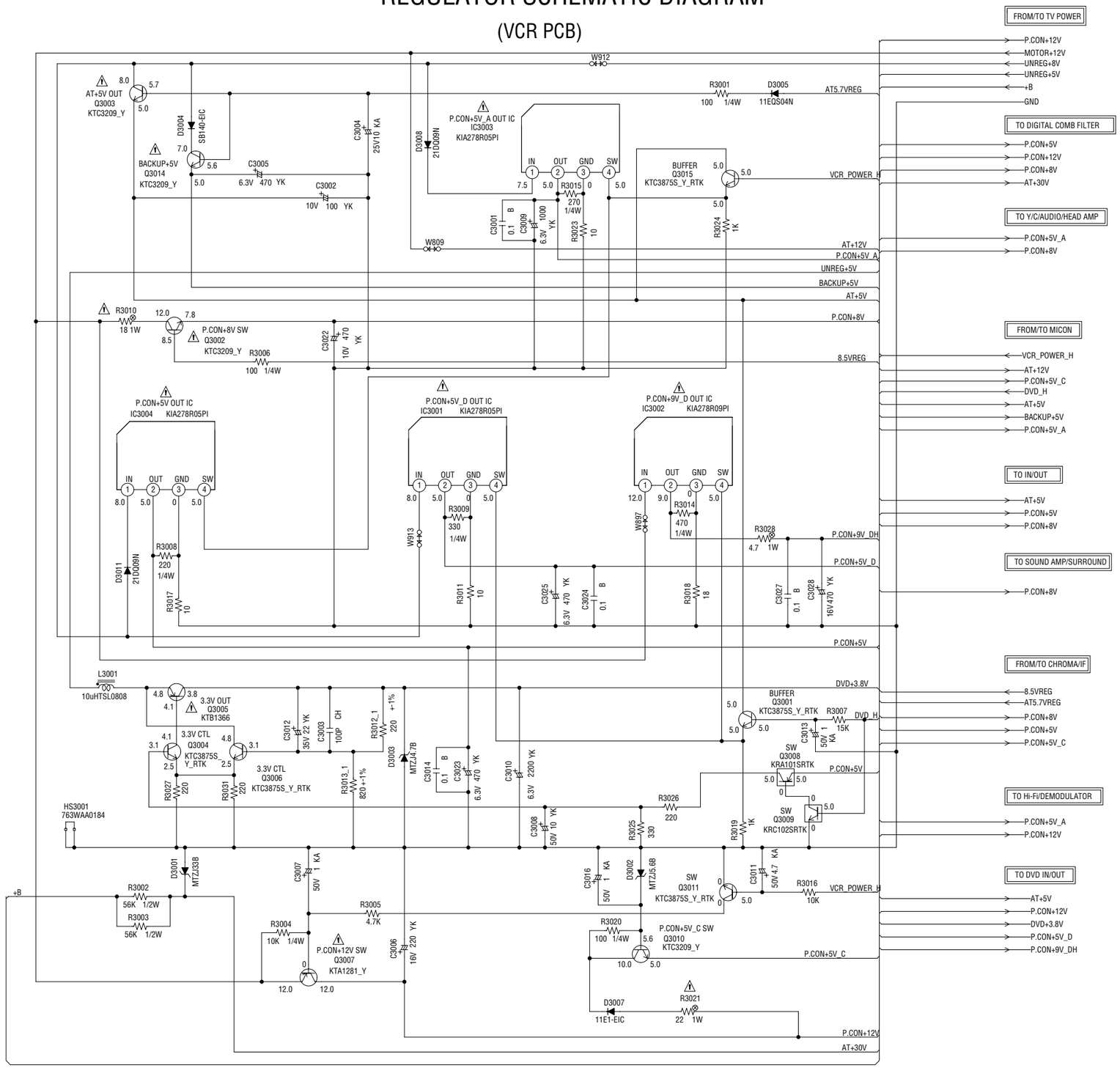
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR



# REGULATOR SCHEMATIC DIAGRAM

## (VCR PCB)

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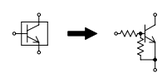
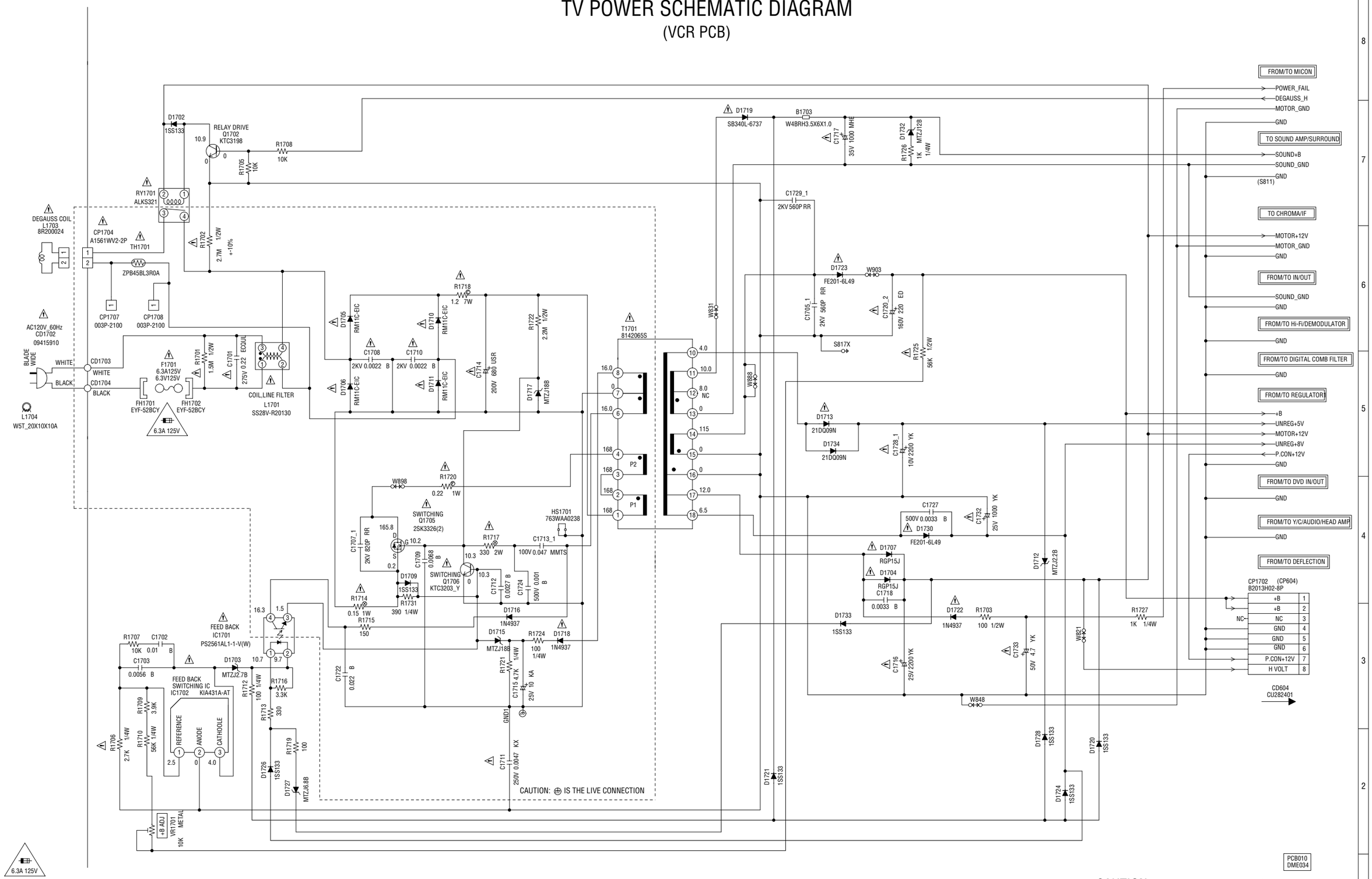


# TV POWER SCHEMATIC DIAGRAM

(VCR PCB)




CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V (F1701)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V (F1701)

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NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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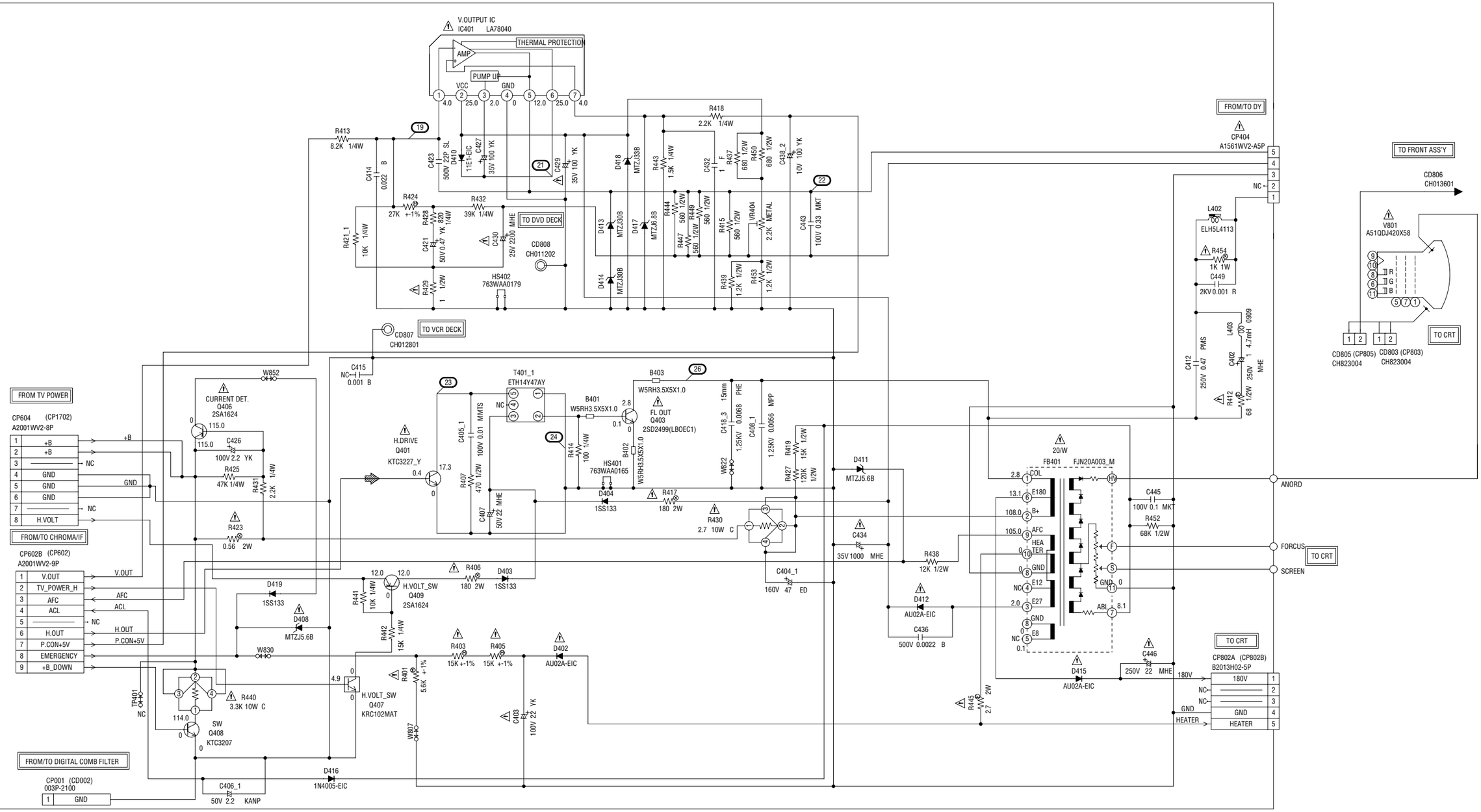
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

PCB010
DME034

# DEFLECTION SCHEMATIC DIAGRAM

## (DEFLECTION PCB)

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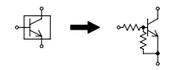
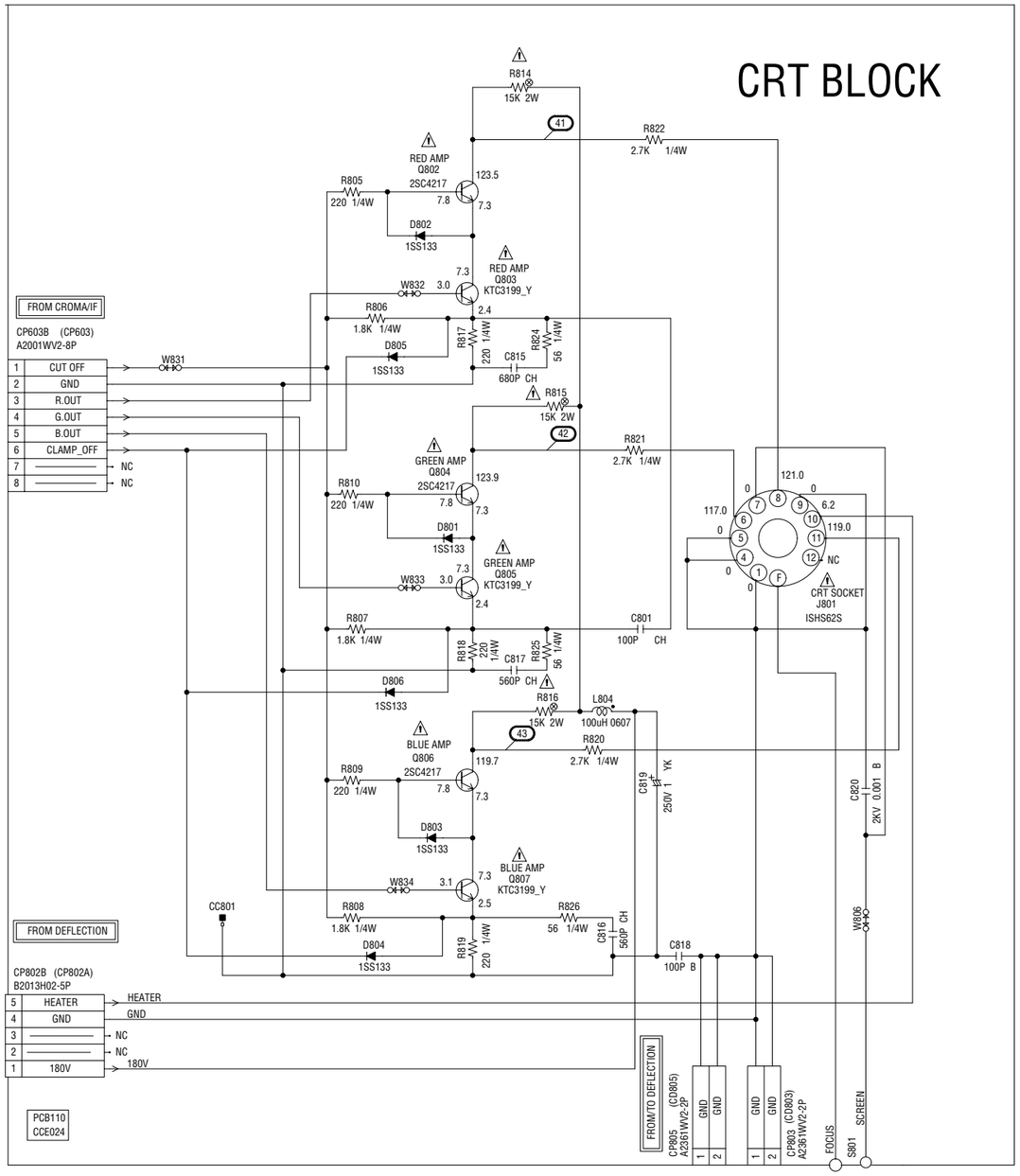
CAUTION: DIGITAL TRANSISTOR

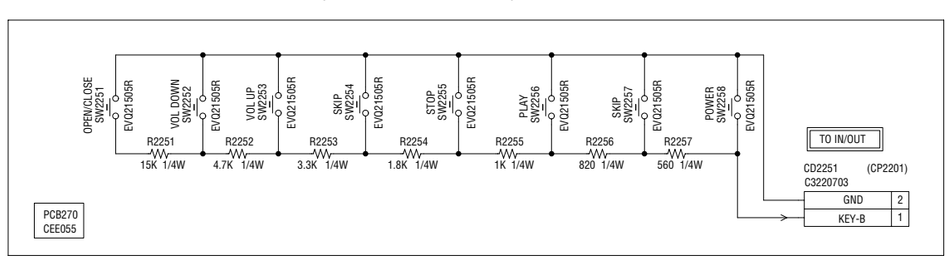


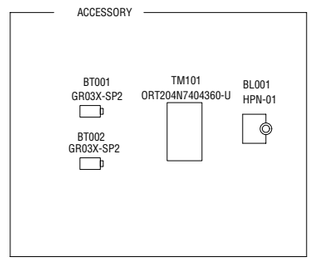
# CRT/OPERATION SCHEMATIC DIAGRAM (CRT PCB)

## CRT BLOCK




## (OPERATION PCB)

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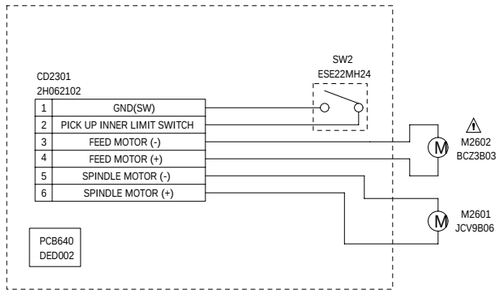
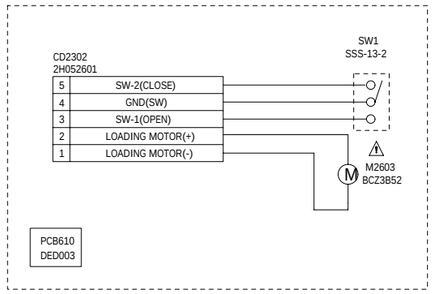
# LOADING MOTOR/SW SCHEMATIC DIAGRAM

## (SW PCB)




## (LOADING MOTOR PCB)

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# INTERCONNECTION DIAGRAM

DVD DRIVE DM-3

| CD2301 | | CP2301 |
|---|---|---|
| GND | 1 — 1 | GND |
| F | 2 — 2 | F |
| Vref | 3 — 3 | Vref |
| VCC | 4 — 4 | VCC |
| E | 5 — 5 | E |
| D | 6 — 6 | D |
| C | 7 — 7 | C |
| SW1(DVD/CD) | 8 — 8 | SW1(DVD/CD) |
| VRF(RF_OUT) | 9 — 9 | VRF(RF_OUT) |
| B | 10 — 10 | B |
| A | 11 — 11 | A |
| VR(DVD) | 12 — 12 | VR(DVD) |
| VR COM | 13 — 13 | VR COM |
| VR(CD) | 14 — 14 | VR(CD) |
| GND | 15 — 15 | GND |
| LD(CD) | 16 — 16 | LD(CD) |
| PD/GND | 17 — 17 | PD/GND |
| LD(DVD) | 18 — 18 | LD(DVD) |
| GND | 19 — 19 | GND |
| NC | 20 — 20 | NC |
| T DRV | 21 — 21 | T DRV |
| T RTN | 22 — 22 | T RTN |
| F DRV | 23 — 23 | F DRV |
| F RTN | 24 — 24 | F RTN |

OPTICAL PICK-UP

SPINDLE MOTOR

SLED,LOADING MOTOR

FG SENSER

FFC

| | | CP2302 |
|---|---|---|
| CLOSE | 1 — 1 | CLOSE |
| GND(D) | 2 — 2 | GND(D) |
| OPEN | 3 — 3 | OPEN |
| LD+ | 4 — 4 | LD+ |
| LD- | 5 — 5 | LD- |

| | | CP2303 |
|---|---|---|
| SP1+ | 1 — 1 | SP1+ |
| SP1- | 2 — 2 | SP1- |
| SLD+ | 3 — 3 | SLD+ |
| SLD- | 4 — 4 | SLD- |
| LIMIT SW | 5 — 5 | LIMIT SW |
| SW(GND) | 6 — 6 | SW(GND) |

L4002

DVD PCB PCB130 DME031

| CD4002 | | CP8001 |
|---|---|---|
| GND(D) | 1 — 1 | GND(D) |
| GND(D) | 2 — 2 | GND(D) |
| TX | 3 — 3 | TX |
| RX | 4 — 4 | RX |
| GND(M) | 5 — 5 | GND(M) |
| P.CON+9V | 6 — 6 | P.CON+9V |
| P.CON+5V | 7 — 7 | P.CON+D5V |
| P.CON+3.8V | 8 — 8 | P.CON+3.8V |
| P.CON+3.8V | 9 — 9 | P.CON+3.8V |
| GND(A) | 10 — 10 | GND(A) |
| SPDIF | 11 — 11 | SPDIF |

| CP8101_2 | | CD8101 FFC | | CP8002 |
|---|---|---|---|---|
| CVBS | 1 — | 1 — 12 | | 12 CVBS |
| GND | 2 — | 2 — 11 | | 11 GND |
| C(CVBS) | 3 — | 3 — 10 | | 10 C(CVBS) |
| GND | 4 — | 4 — 9 | | 9 GND |
| Y | 5 — | 5 — 8 | | 8 Y |
| GND | 6 — | 6 — 7 | | 7 GND |
| AUDIO-L | 7 — | 7 — 6 | | 6 AUDIO-L |
| GND | 8 — | 8 — 5 | | 5 GND |
| AUDIO-R | 9 — | 9 — 4 | | 4 AUDIO-R |
| ZERO | 10 — | 10 — 3 | | 3 ZERO |
| DVD RESET | 11 — | 11 — 2 | | 2 DVD RESET |
| GND | 12 — | 12 — 1 | | 1 GND |

| CP001 | | CD002 |
|---|---|---|
| GND | 1 — 1 | GND |

| CP602B | | CD602 | | CP602 |
|---|---|---|---|---|
| V.OUT | 1 — | 1 — | 1 — | V.OUT |
| TV_POWER_H | 2 — | 2 — | 2 — | TV_POWER_H |
| AFC | 3 — | 3 — | 3 — | AFC |
| ACL | 4 — | 4 — | 4 — | ACL |
| | 5 — | 5 — | 5 — | |
| H.OUT | 6 — | 6 — | 6 — | H.OUT |
| P.CON+5V | 7 — | 7 — | 7 — | P.CON+5V |
| EMERGENCY | 8 — | 8 — | 8 — | EMERGENCY |
| +B_DOWN | 9 — | 9 — | 9 — | +B_DOWN |

| CP604 | | CD604 | | CP1702 |
|---|---|---|---|---|
| +B | 1 — | 1 — | 1 — | +B |
| +B | 2 — | 2 — | 2 — | +B |
| NC | 3 — | 3 — | 3 — | NC |
| GND | 4 — | 4 — | 4 — | GND |
| GND | 5 — | 5 — | 5 — | GND |
| GND | 6 — | 6 — | 6 — | GND |
| | 7 — | 7 — | 7 — | |
| H.VOLT | 8 — | 8 — | 8 — | H.VOLT |

TV MT PCB PCB080 CME029

FBT FB401_1

CP802A: 180V, GND, HEATER

CP404: NC

FOCUS SCREEN

CP804: SCREEN, FOCUS

CP802B: 180V, GND, HEATER

V801 H.V ANODE CRT

CRT SOCKET J801

| CP603 | |
|---|---|
| CUT_OFF | 1 |
| GND | 2 |
| R.OUT | 3 |
| G.OUT | 4 |
| B.OUT | 5 |
| CLAMP_OFF | 6 |
| | 7 |
| | 8 |

L603

DEGAUSS COIL L1703

CP1704

BLADE WIDE

WHITE — CD1703 WHITE

BLACK — CD1704 BLACK

AC120V_60Hz CD1702

L1704

| CP603B | |
|---|---|
| CUT_OFF | 1 |
| GND | 2 |
| R.OUT | 3 |
| G.OUT | 4 |
| B.OUT | 5 |
| CLAMP_OFF | 6 |
| | 7 |
| | 8 |

CRT PCB PCB110 CCE024

CP805: GND GND — CD805

CP803: GND GND — CD803

OPERATION PCB PCB270 CEE065

CD2251: GND, KEY-B — CP2201: GND, KEY-B

HEADPHONE_JACK J2201

SPEAKER 8 OHM SP351 — CD303 — CP303: SOUND L+, SOUND L-, SOUND R-, SOUND R+

SPEAKER 8 OHM SP352

COMMAND TRANSMITTER TM101

OS2201: Vout, GND, B+

FULL ERASE HEAD ASS'Y H5002: FE HEAD (HOT), FE HEAD (GND) — CP4503: FE HEAD(HOT), FE HEAD(GND)

HALL SENSOR, MAIN COIL, ROTOR MAGNET, MR FG SENSOR (VCC, O, G)

HALL VCC, HALL IN, OUT SWITCH LOGIC

| CP101 | | |
|---|---|---|
| 1 | CAP_FG | 1 |
| 2 | CAP_VCO | 2 |
| 3 | VCC | 3 |
| 4 | CAP.M F/R | 4 |
| 5 | I_LIMIT | 5 |
| 6 | MOTOR GND | 6 |
| 7 | GND | 7 |
| 8 | LD/CY_VCO | 8 |
| 9 | CAP_CTL | 9 |
| 10 | LDM CTL | 10 |
| 11 | CYL_FG/PG | 11 |
| 12 | CYL_CTL | 12 |

CAPSTAN DD UNIT M2001

FFC 1 2 3 4 5 6 7 — RED — WHITE — LM

LOADING MOTOR M101

D-PG GND, D-PG OUT, M-GND, D-COM, D-W OUT, D-V OUT, D-U OUT

UN4001 CYLINDER UNIT

CD4501 FFC — HI-FI HEAD, SP HEAD, EP/LP HEAD

| CP4501 | | |
|---|---|---|
| HF1_(R) | 9 | 9 |
| HF_COM | 8 | 8 |
| HF2 (L) | 7 | 7 |
| SP-CH1 (R) | 6 | 6 |
| SP_COM | 5 | 5 |
| SP-CH2 (L) | 4 | 4 |
| EP/LP-CH1 (R) | 3 | 3 |
| EP/LP_COM | 2 | 2 |
| EP/LP-CH2 (L) | 1 | 1 |

HEAD AUDIO CONTROL ASS'Y H5001 — FFC — AUDIO, CONTROL, AE

| CP4502 | | |
|---|---|---|
| AUDIO REC | 6 | 6 |
| AUDIO PB | 5 | 5 |
| CTL+ | 4 | 4 |
| CTL- | 3 | 3 |
| AE HEAD(+) | 2 | 2 |
| AE HEAD(-) | 1 | 1 |

VCR PCB PCB010 DME034

MONITOR TUNER TU001

| | | |
|---|---|---|
| | | 21 20 |
| | 17 | VIDEO OUT |
| NC | 16 | NC |
| | 15 | AT+30V |
| | 14 | SIF OUT |
| NC | 13 | AUDIO OUT |
| | 12 | AFT OUT |
| | 11 | DATA |
| | 10 | CLOCK |
| NC | 9 | NC |
| NC | 8 | NC |
| NC | 7 | NC |
| NC | 6 | NC |
| NC | 5 | NC |
| NC | 4 | NC |
| | 3 | +B |
| NC | 2 | NC |
| NC | 1 | NC |
| | | F9 F8 |

YELLOW — FRONT VIDEO JACK J2202

WHITE — FRONT AUDIO L JACK J2203

RED — FRONT AUDIO R JACK J2204

REAR IN JACK J4201

REAR OUT JACK J4202

COAXIAL J8007

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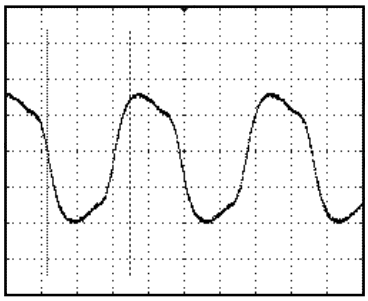
# WAVEFORMS

## MPEG/MICON/DSP/RF_AMP

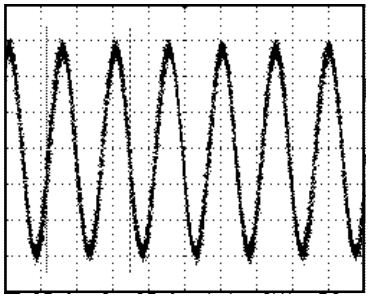
10ns
100mV

①



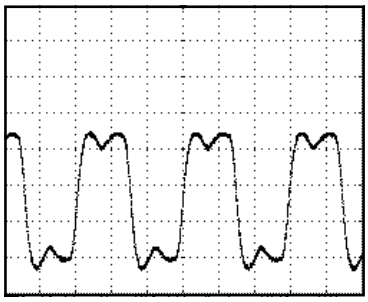
5ns
20mV

②



20ns
1.0V

③



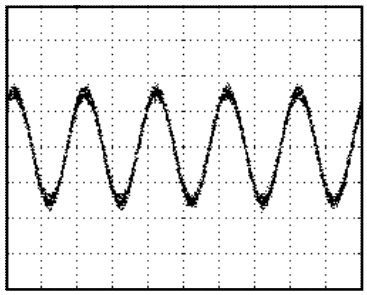
200ns
1.0V

④

## AUDIO/VIDEO

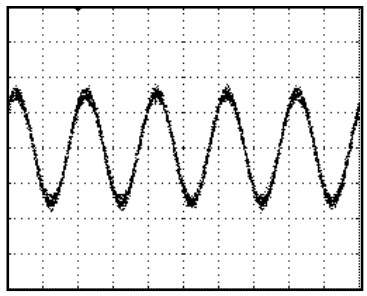
500µs
500mV

⑥



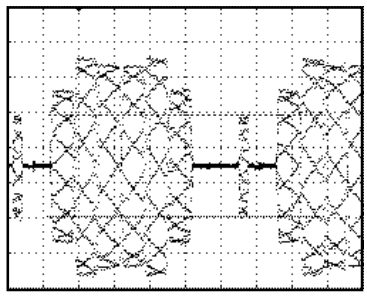
500µs
500mV

⑦



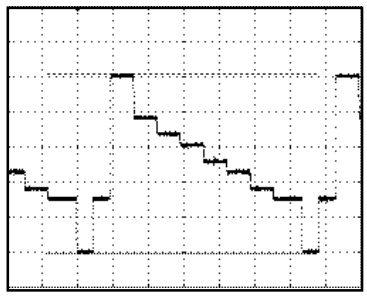
10µs
100mV

⑧



100µs
200mV

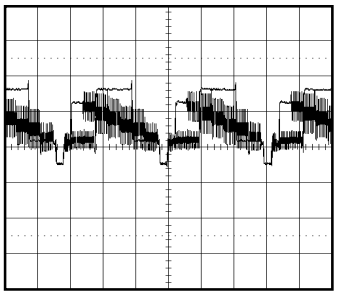
⑨



## Y/C/AUDIO/HEAD AMP

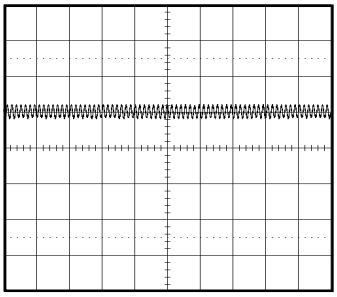
20µs
1.0V

⑪



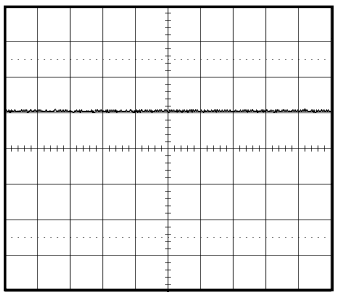
2µs
1.0V

⑫



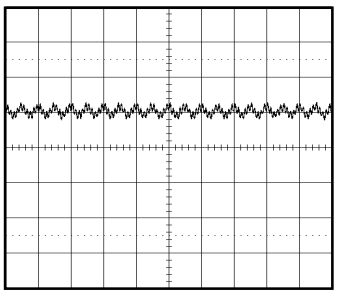
1ms
1.0V

⑬



5ms
2.0V

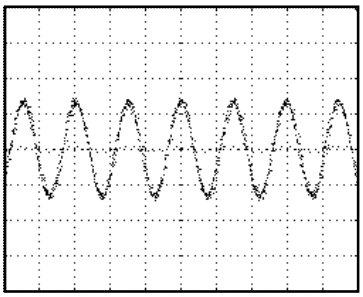
⑭



## MEMORY

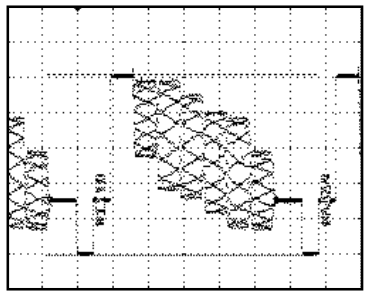
5ns
500mV

⑤



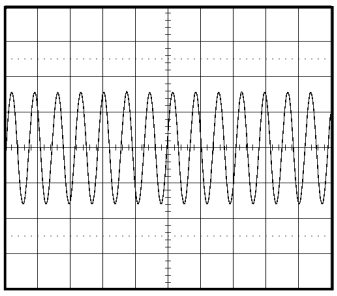
10µs
200mV

⑩



20µs
20V

⑮

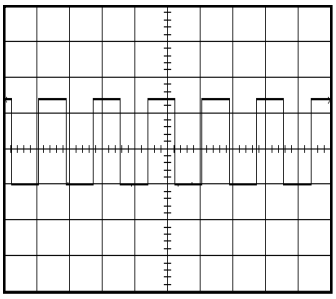


**NOTE:** The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# WAVEFORMS

## MICON

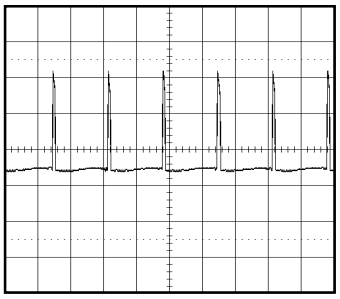
20ms
2.0V



16

## DEFLECTION

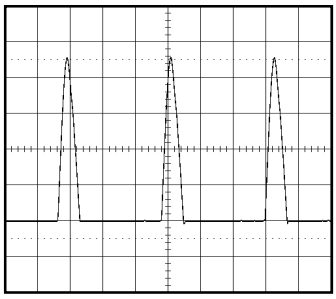
10ms
10V



21

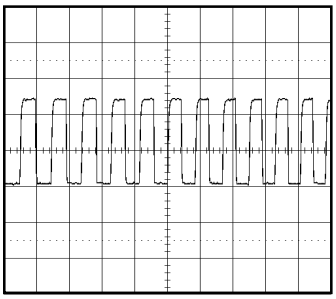
## DEFLECTION

20µs
200V



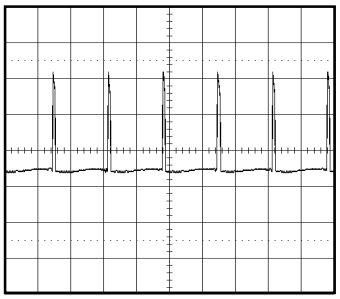
26

1ms
2.0V



17

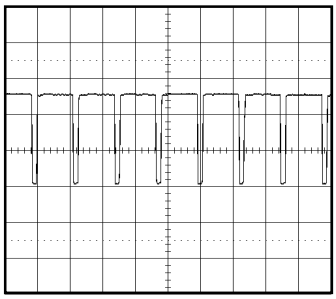
10ms
10V



22

## MICON

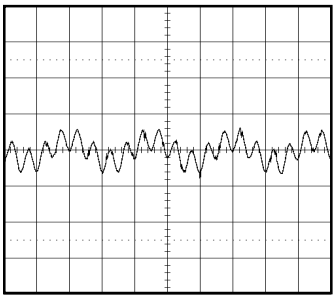
50µs
2.0V



27

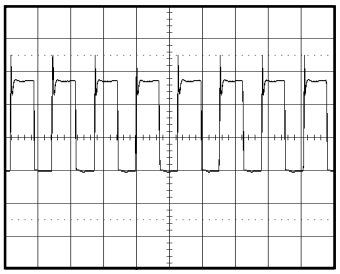
## SOUND AMP/SURROUND

1ms
200mV



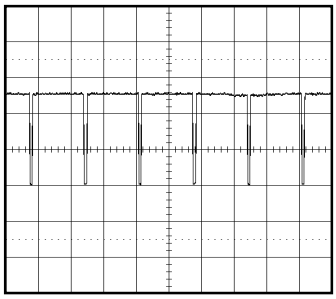
18

50µs
10V



23

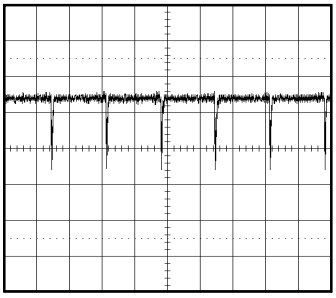
10ms
2.0V



28

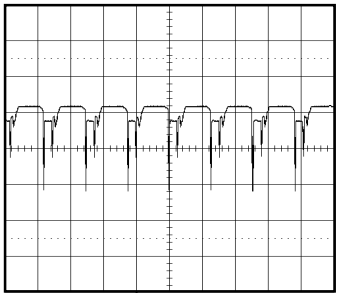
## DEFLECTION

10ms
0.5V



19

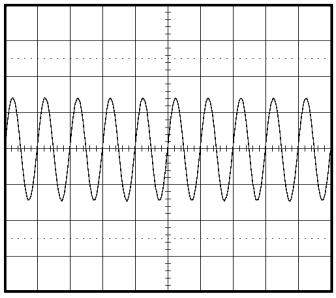
50µs
5.0V



24

## DVD IN/OUT

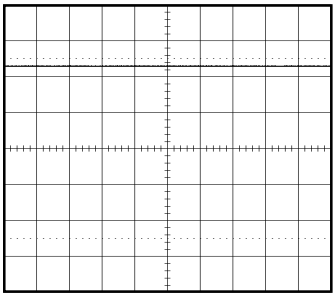
1ms
2.0V



29

## Hi-Fi/DEMODULATOR

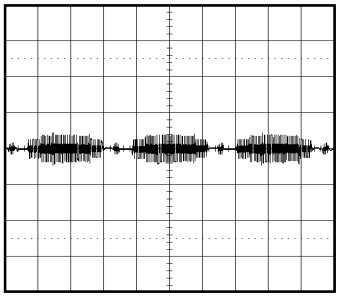
1ms
1.0V



20

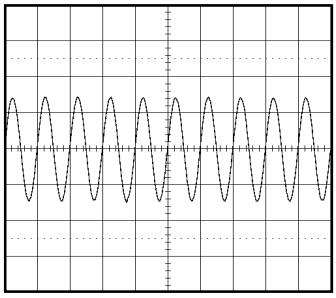
## CHROMA/IF

20µs
0.5V



25

1ms
2.0V



30

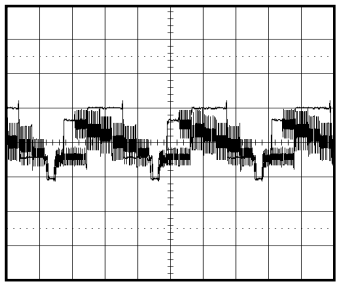
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# WAVEFORMS

## DIGITAL COMB FILTER

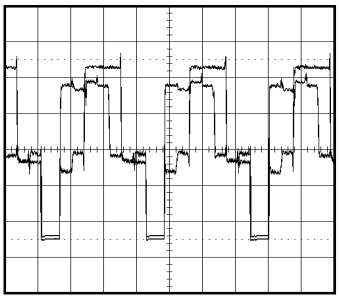
20µs
0.5V

(31)



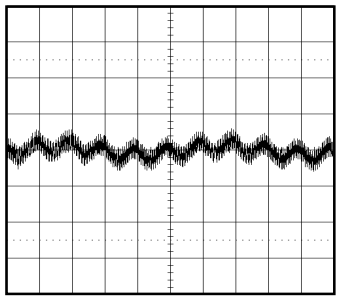
20µs
1.0V

(36)



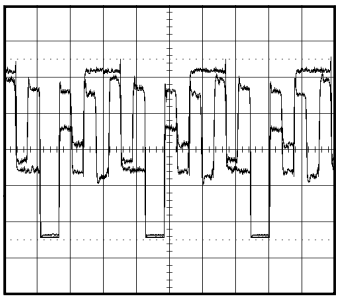
0.5ms
0.5V

(32)



20µs
1.0V

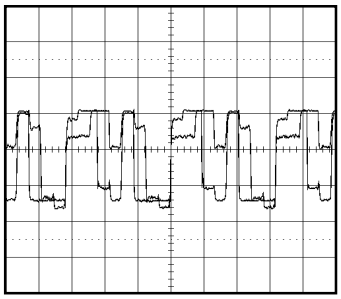
(37)



## CRT/OPERATION

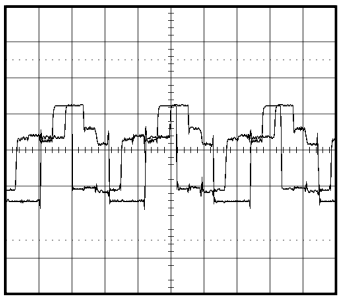
20µs
50V

(41)



20µs
50V

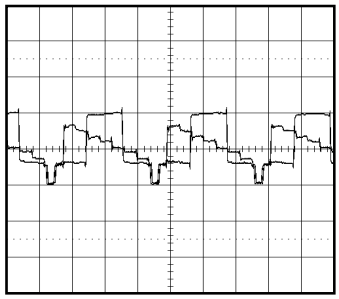
(42)



## CHROMA/IF

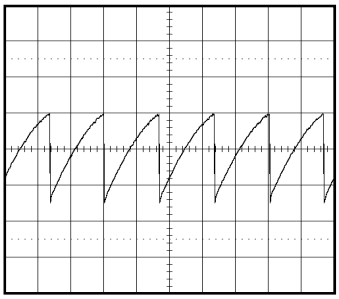
20µs
0.5V

(33)



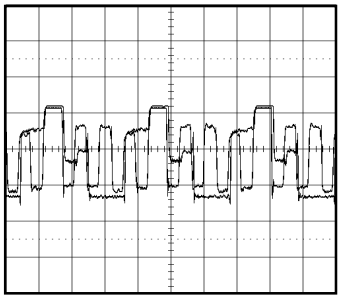
10ms
1.0V

(38)



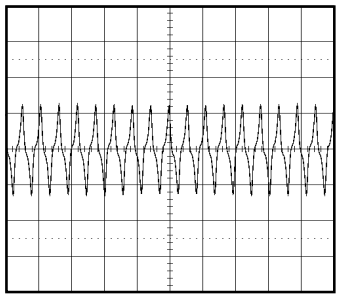
20µs
50V

(43)



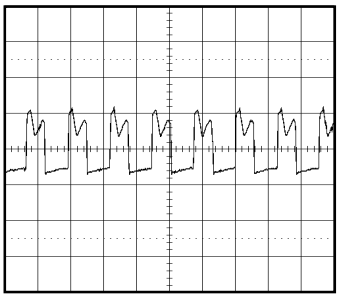
0.5µs
100mV

(34)



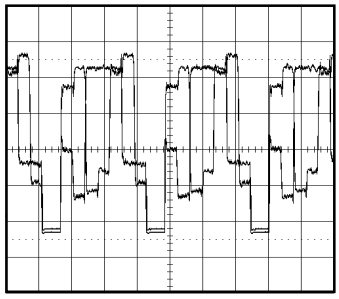
50µs
0.5V

(39)



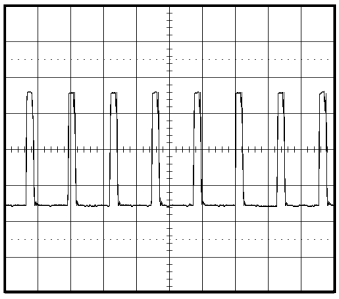
20µs
1.0V

(35)



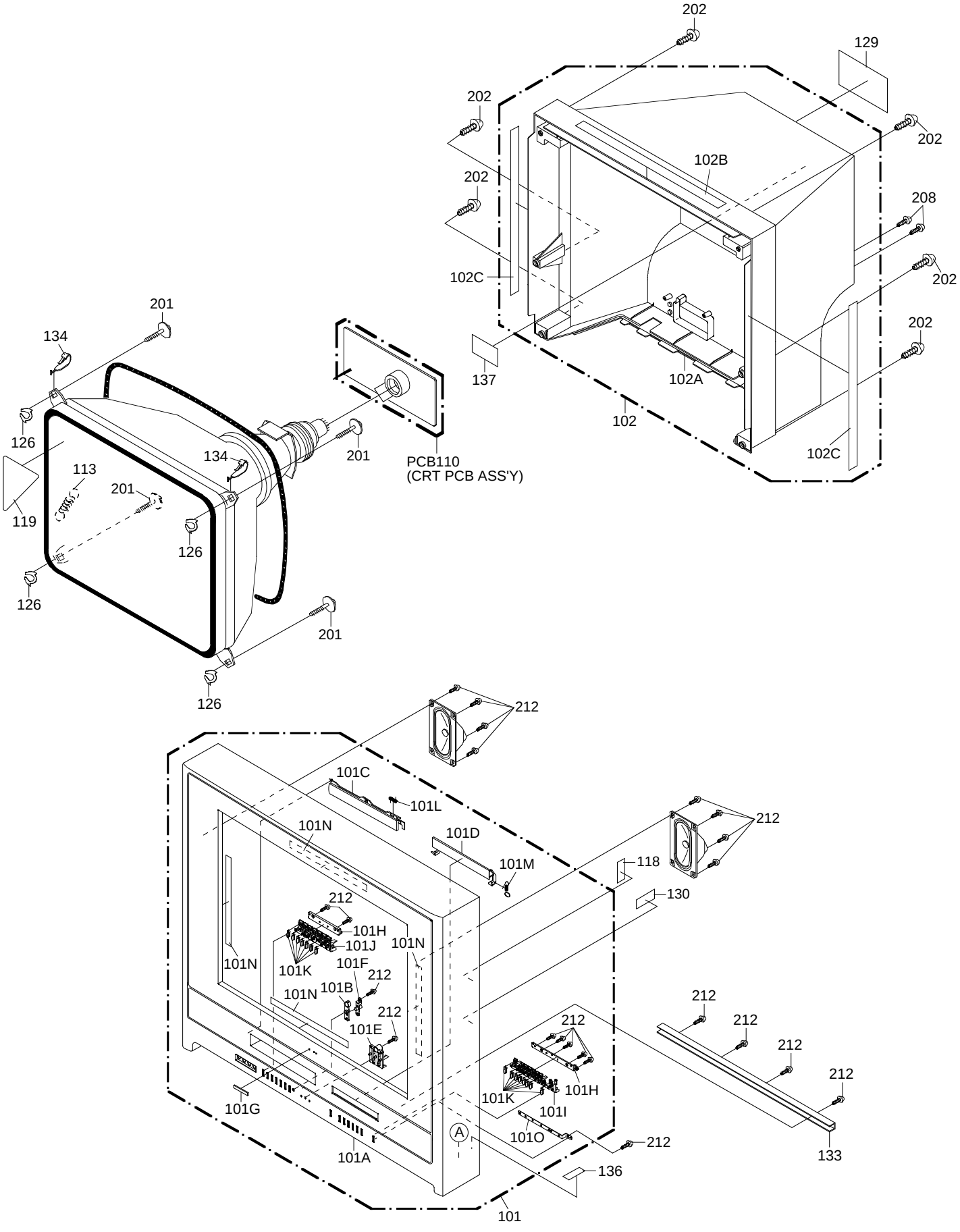
50µs
2.0V

(40)

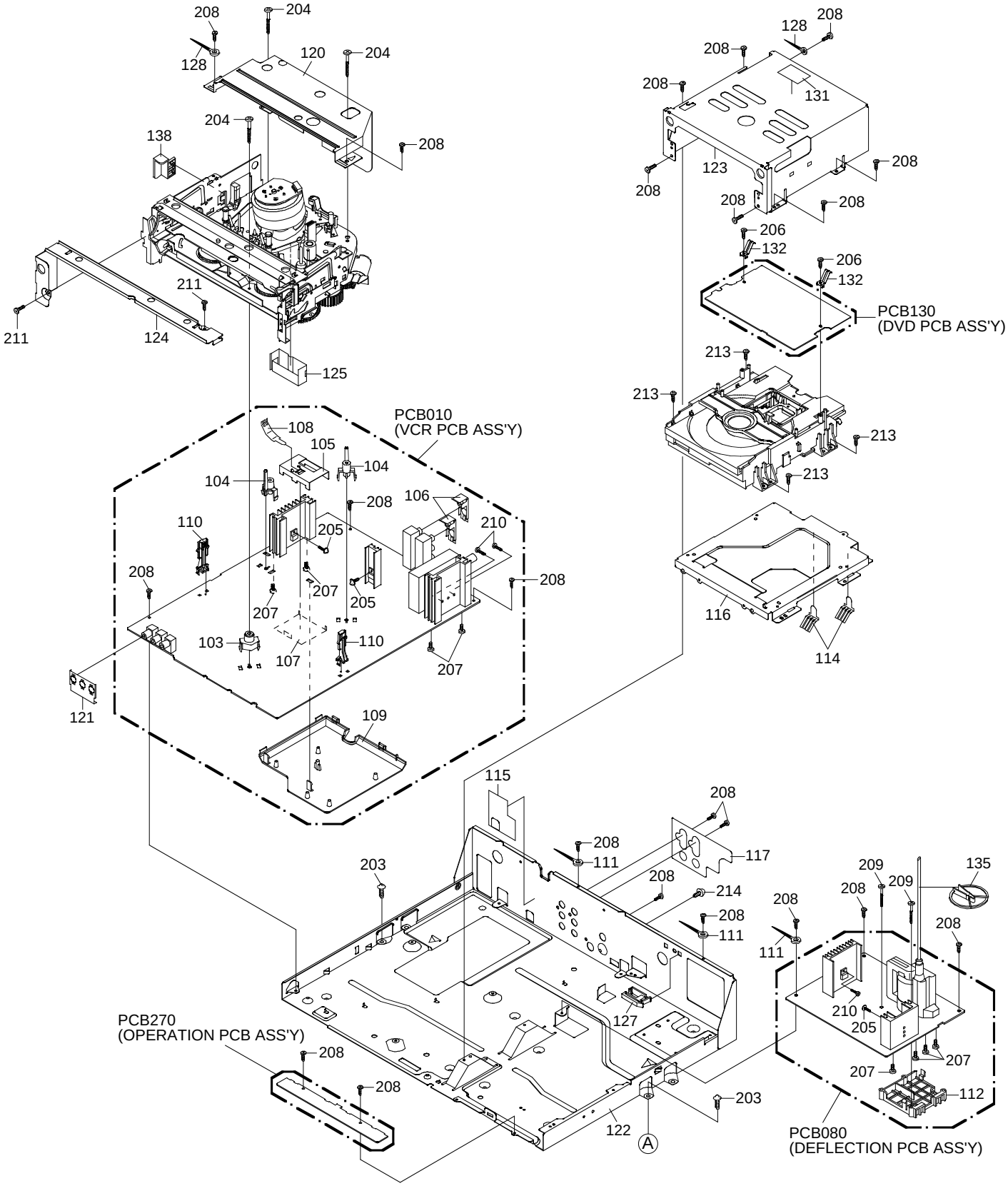


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

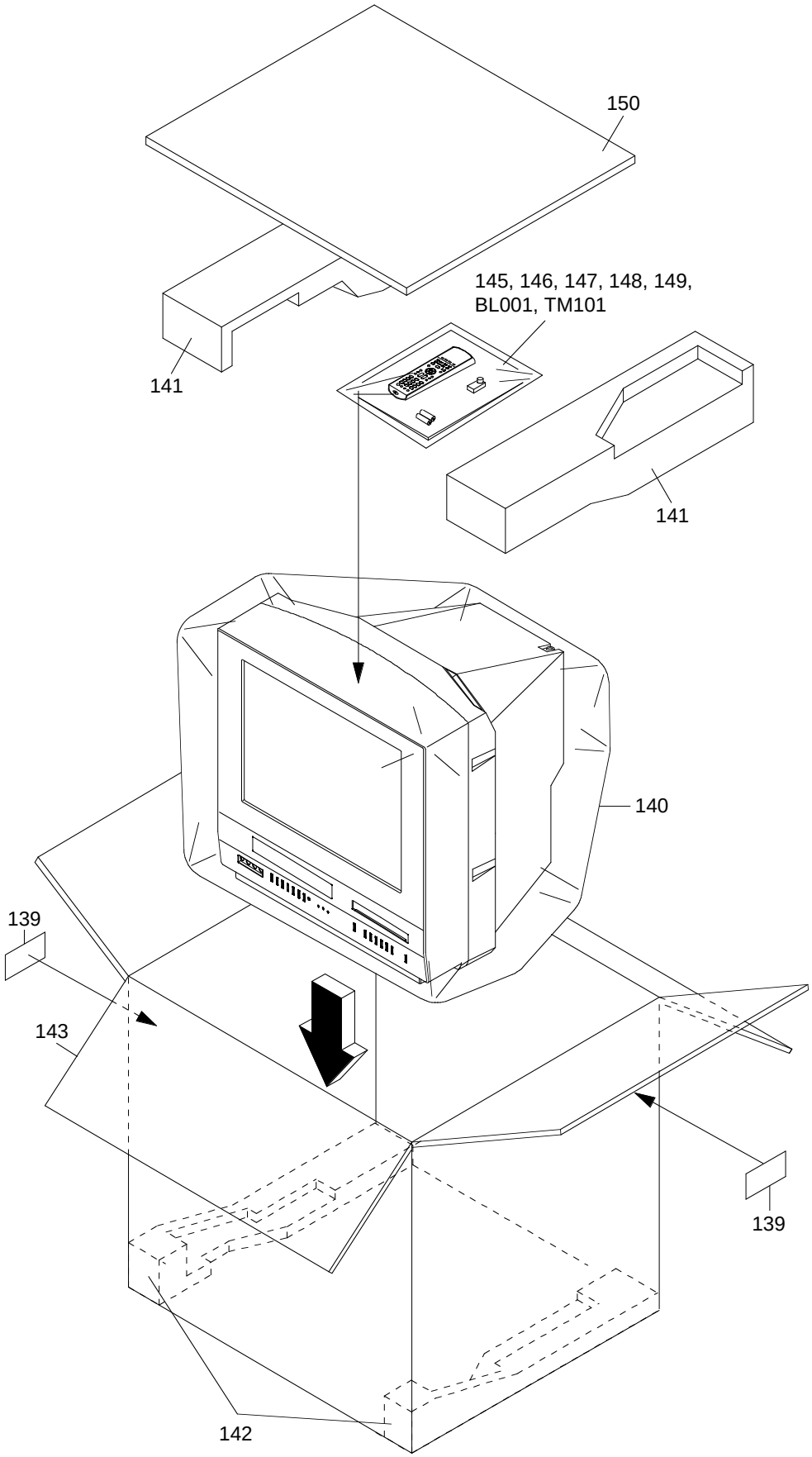
# MECHANICAL EXPLODED VIEW



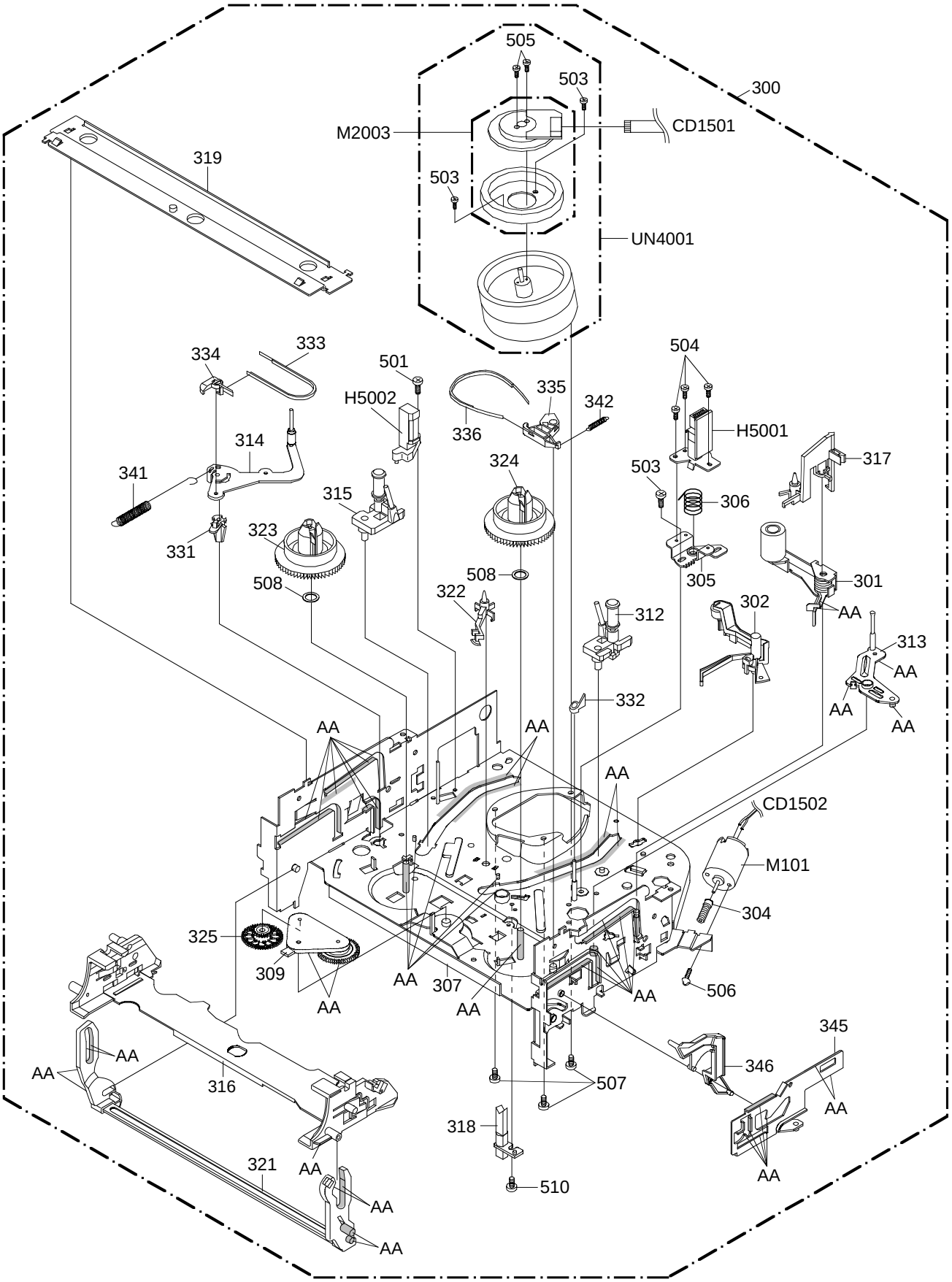
# MECHANICAL EXPLODED VIEW



# MECHANICAL EXPLODED VIEW
# (PACKING DIAGRAM)



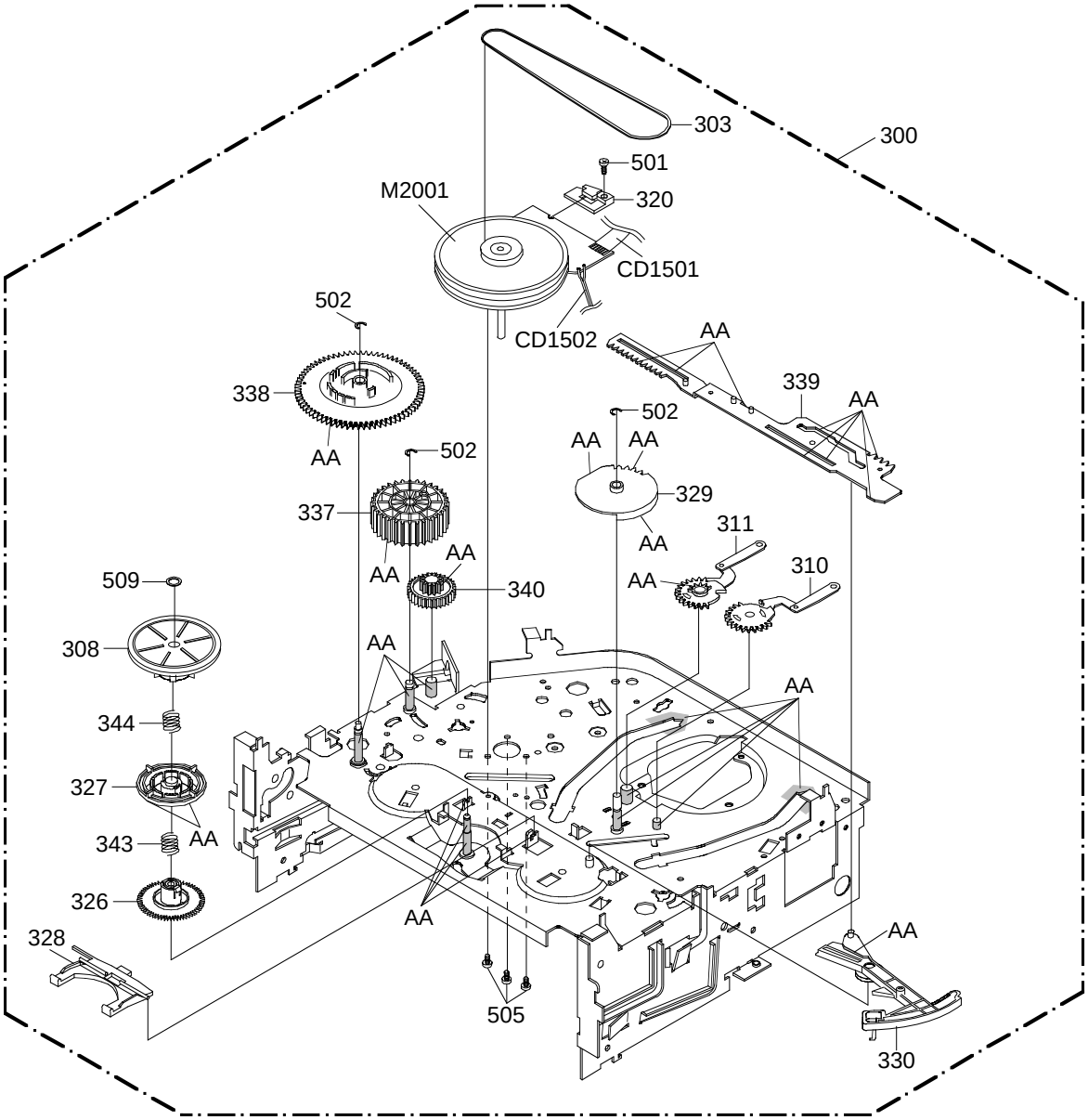
# CHASSIS EXPLODED VIEW (TOP VIEW)




| CLASS | MARK |
|---|---|
| GREASE | AA |

**NOTE:** Applying positions AA for the grease are displayed for this section. Check if the correct grease is applied for each position.

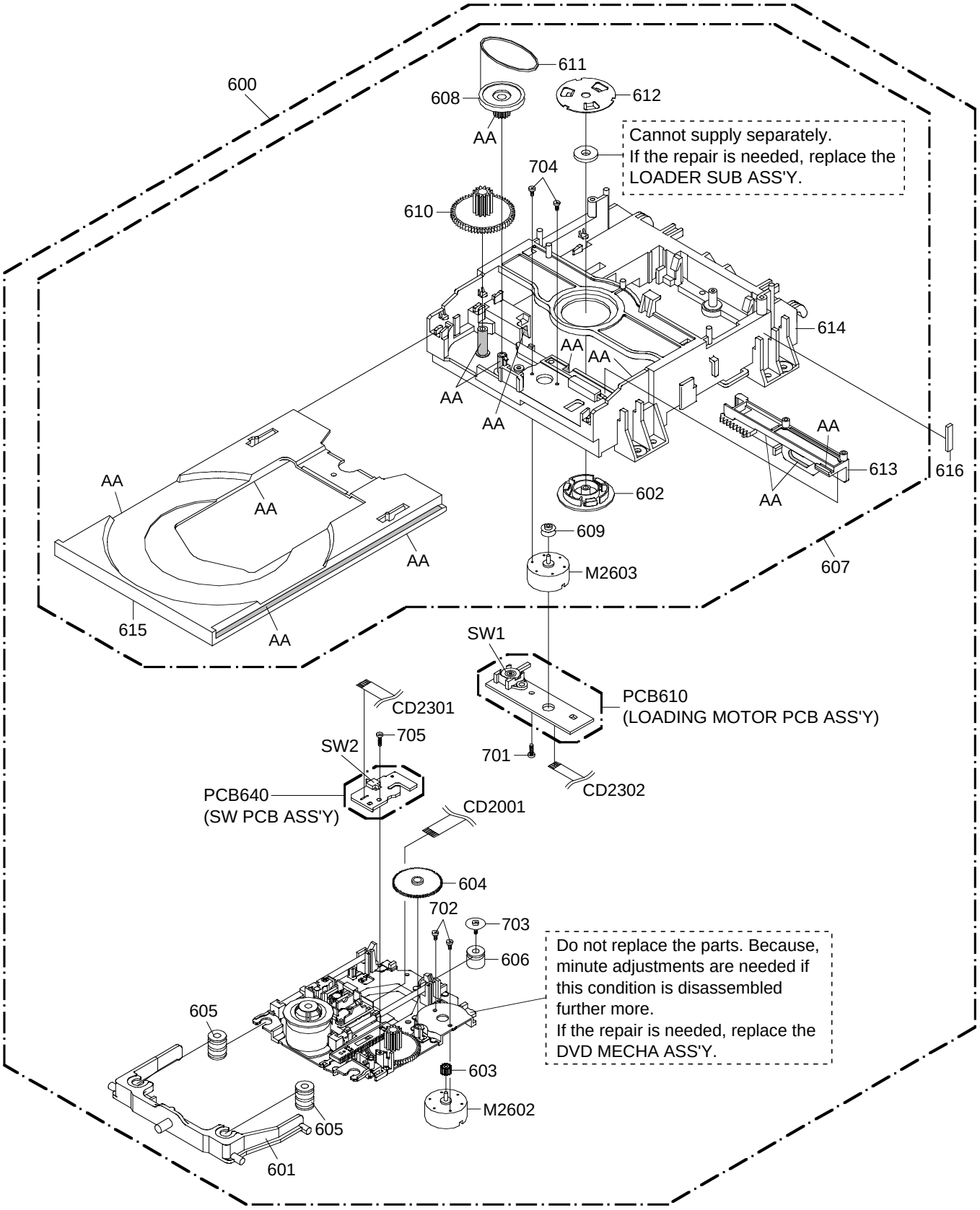
# CHASSIS EXPLODED VIEW (BOTTOM VIEW)




| CLASS | MARK |
|---|---|
| GREASE | AA |

**NOTE:** Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

# DVD DECK EXPLODED VIEW




| CLASS | MARK |
|---|---|
| GREASE | AA |

**NOTE:** Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description |
|---|---|---|---|
| 101 | AE007083 | 7A701A372A | FRONT CABI ASS'Y |
| 101A | AE007084 | 701WPJC982 | CABINET,FRONT |
| 101B | AE003101 | 711WPA0200 | PLATE,FRONT |
| 101C | AE007085 | 712WPJC123 | FLAT,FLAP |
| 101D | AE007086 | 712WPJC124 | FLAP,DVD |
| 101E | AE003104 | 713WPA0311 | GLASS,LED |
| 101F | AE003105 | 713WPA0312 | GUIDE,REMOCON |
| 101G | AD302008 | 7235490036 | BADGE,BRAND |
| 101H | AE003106 | 735WPA0805 | STOPPER,BUTTON |
| 101I | AE007034 | 735WPAA843 | BUTTON,FRAME-DVD |
| 101J | AE007035 | 735WPAA844 | BUTTON,FRAME-VCR |
| 101K | AE006499 | 735WPEA002 | BUTTON,CAP |
| 101L | AD301686 | 743WKA0037 | SPRING,FLAP |
| 101M | AE001324 | 742WKA0001 | SPRING,DVD-FLAP |
| 101N | AE003110 | 800WQ0A052 | FELT SHEET |
| 101O | AE003462 | 752WSAA068 | SHIELD BUTTON,DVD |
| 102 | AE007087 | 7A702A123A | BACK CABI ASS'Y |
| 102A | AE007088 | 702WPAA851 | CABINET,BACK |
| 102B | AE003113 | 800WQ0A036 | FELT SHEET |
| 102C | AE005969 | 800WQ0A092 | FELT SHEET |
| 103 | BZ710577 | 701WPA0686 | HOLDER,DECK |
| 104 | BZ710658 | 701WPA0751 | HOLDER,DECK |
| 105 | BZ710466 | 752WSA0230 | SHIELD,CASE HEAD AMP |
| 106 | BZ710659 | 752WSA0290 | SHIELD,COMPO |
| 107 | AD301956 | 752WSA0308 | SHIELD,COVER HEAD AMP |
| 108 | BZ710331 | 753WUAA006 | SPRING,EARTH HEAD AMP |
| 109 | AD301957 | 755WPA0035 | COVER,PCB |
| 110 | BZ710498 | 85OP700038 | HOLDER,END SENSOR |
| 111 | AD301370 | 899EFBA002 | WIRING-CLIP |
| 112 | BZ710459 | 761WPA0223 | HOLDER,FBT |
| 113 | BZ710660 | 741WUA0021 | SPRING,EARTH |
| 114 | AE004480 | 753WUA0069 | SPRING,EARTH |
| 115 | AE006503 | 7250000596 | SHEET,PC |
| 116 | AE004907 | 761WSAA023 | ANGLE,DECK |
| 117 | AE000733 | 7230007691 | SHEET,JACK |
| 119 | AE007089 | 723000C860 | POP LABEL |
| 120 | AE007226 | 752WSAA122 | SHIELD,COVER DECK |
| 121 | BZ710671 | 752WSA0292 | SHIELD,AV JACK |
| 122 | AE006506 | 752WSAA075 | PLATE,BOTTOM |
| 123 | AE006507 | 752WSA0489 | DVD,TOP |
| 124 | AE006508 | 752WSAA080 | VCR,TOP |
| 125 | AD301966 | 752WSA0327 | SHIELD,COVER FPC |
| 126 | AE005971 | 769WSAA012 | WASHER CRT T=0.5 |
| 127 | AE000164 | 774WPA0005 | HOLDER,WIRE-2 |
| 128 | BZ710039 | 8995034000 | CORD CLIP UL CO. |
| 129 | AE007090 | 722549A443 | SHEET,RATING |
| 130 | AE005650 | 723000C727 | SHEET,CAUTION |
| 132 | AD301574 | 744WUA0013 | SPRING,EARTH |
| 133 | AE005981 | 752WSAA083 | ANGLE,FRONT |
| 134 | BZ710259 | 762WPA0011 | HOLDER,CRT WIRE |
| 135 | BZ710260 | 899HV3T000 | HOLDER,ANODE WIRE |
| 137 | AE007091 | 726000A083 | SHEET,CRT SERVICEMAN |
| 138 | BZ710618 | 755WPAA012 | PLATE,COVER LIGHT (L) |
| 139 | AE007092 | 723000C858 | SHEET,BAR CODE |
| 140 | AE005914 | 791WHAA114 | FILM BAG |
| 141 | AE003117 | 792WHA0522 | PACKAGE,TOP |
| 142 | AE003118 | 792WHA0523 | PACKAGE,BOTTOM |
| 143 | AE007093 | 793WCDC665 | GIFT BOX |
| 144 | AE007041 | A5T403Q975 | INSTRUCTION BOOK KIT |
| 145 | AE005985 | JB5KD400 | POLYBAG,INSTRUCTION(RED CAUTION) |
| 146 | AE004983 | J2D60117A | REGISTRATION CARD |
| 147 | AE004982 | J2D60129A | INFORMATION SHEET |
| 148 | AE004980 | J2D60143A | NETFLIX CARD |
| 149 | AE007042 | J5T40301A | INSTRUCTION BOOK |
| 150 | AE007094 | 795WCDA019 | PAD |

# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| 201 | AE005916 | 8141J50C5U | SCREW,TAP TITE(P) GW22 | 5x35 |
| 202 | AE004847 | 8117540A6U | SCREW,TAP TITE(B0) TRUSS | 4x16 |
| 203 | AE003523 | 811754080U | SCREW,TAP TITE(B0) TRUSS | 4x8 |
| 204 | AE005536 | 8109130B9U | SCREW,TAP TITE(B) R PAN | 3x29 |
| 205 | AE003524 | 8109I30A0U | SCREW,TAP TITE(B) WH7 | 3x10 |
| 206 | AE003530 | 811022680U | SCREW,TAP TITE(P) BIND | 2.6x8 |
| 207 | AE005917 | 810963080Q | SCREW,TAP TITE(B) BRAZIER | 3x8 |
| 208 | AE003526 | 810923080U | SCREW,TAP TITE(B) BIND | 3x8 |
| 209 | AE005989 | 8107630A8U | SCREW,TAP TITE(S) BRAZIER | 3x18 |
| 210 | AE003531 | 810763080U | SCREW,TAP TITE(S) BRAZIER | 3x8 |
| 211 | AE005987 | 810723060U | SCREW,TAP TITE(S) BIND | 3x6 |
| 212 | AE003529 | 811063080U | SCREW,TAP TITE(P) BRAZIER | 3x8 |
| 213 | AE005541 | 810F13080U | SEMS(F) | 3x8 |
| 214 | AE003532 | 810723040U | SCREW,TAP TITE(S) BIND | 3x4 |

# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description |
|---|---|---|---|
| 101 | AE007083 | 7A701A372A | FRONT CABI ASS'Y |
| 101A | AE007084 | 701WPJC982 | CABINET,FRONT |
| 101B | AE003101 | 711WPA0200 | PLATE,FRONT |
| 101C | AE007085 | 712WPJC123 | FLAT,FLAP |
| 101D | AE007086 | 712WPJC124 | FLAP,DVD |
| 101E | AE003104 | 713WPA0311 | GLASS,LED |
| 101F | AE003105 | 713WPA0312 | GUIDE,REMOCON |
| 101G | AD302008 | 7235490036 | BADGE,BRAND |
| 101H | AE003106 | 735WPA0805 | STOPPER,BUTTON |
| 101I | AE007034 | 735WPAA843 | BUTTON,FRAME-DVD |
| 101J | AE007035 | 735WPAA844 | BUTTON,FRAME-VCR |
| 101K | AE006499 | 735WPEA002 | BUTTON,CAP |
| 101L | AD301686 | 743WKA0037 | SPRING,FLAP |
| 101M | AE001324 | 742WKA0001 | SPRING,DVD-FLAP |
| 101N | AE003110 | 800WQ0A052 | FELT SHEET |
| 101O | AE003462 | 752WSAA068 | SHIELD BUTTON,DVD |
| 102 | AE007087 | 7A702A123A | BACK CABI ASS'Y |
| 102A | AE007088 | 702WPAA851 | CABINET,BACK |
| 102B | AE003113 | 800WQ0A036 | FELT SHEET |
| 102C | AE005969 | 800WQ0A092 | FELT SHEET |
| 103 | BZ710577 | 701WPA0686 | HOLDER,DECK |
| 104 | BZ710658 | 701WPA0751 | HOLDER,DECK |
| 105 | BZ710466 | 752WSA0230 | SHIELD,CASE HEAD AMP |
| 106 | BZ710659 | 752WSA0290 | SHIELD,COMPO |
| 107 | AD301956 | 752WSA0308 | SHIELD,COVER HEAD AMP |
| 108 | BZ710331 | 753WUAA006 | SPRING,EARTH HEAD AMP |
| 109 | AD301957 | 755WPA0035 | COVER,PCB |
| 110 | BZ710498 | 85OP700038 | HOLDER,END SENSOR |
| 111 | AD301370 | 899EFBA002 | WIRING-CLIP |
| 112 | BZ710459 | 761WPA0223 | HOLDER,FBT |
| 113 | BZ710660 | 741WUA0021 | SPRING,EARTH |
| 114 | AE004480 | 753WUA0069 | SPRING,EARTH |
| 115 | AE006503 | 7250000596 | SHEET,PC |
| 116 | AE004907 | 761WSAA023 | ANGLE,DECK |
| 117 | AE000733 | 7230007691 | SHEET,JACK |
| 118 | AE006166 | 722000A267 | SHEET,CSA WARNING |
| 119 | AE007095 | 723000C886 | POP LABEL |
| 120 | AE007226 | 752WSAA122 | SHIELD,COVER DECK |
| 121 | BZ710671 | 752WSA0292 | SHIELD,AV JACK |
| 122 | AE006506 | 752WSAA075 | PLATE,BOTTOM |
| 123 | AE006507 | 752WSA0489 | DVD,TOP |
| 124 | AE006508 | 752WSAA080 | VCR,TOP |
| 125 | AD301966 | 752WSA0327 | SHIELD,COVER FPC |
| 126 | AE005971 | 769WSAA012 | WASHER CRT T=0.5 |
| 127 | AE000164 | 774WPA0005 | HOLDER,WIRE-2 |
| 128 | BZ710039 | 8995034000 | CORD CLIP UL CO. |
| 129 | AE007321 | 722549A453 | SHEET,RATING |
| 130 | AE006290 | 723000C728 | SHEET,CAUTION |
| 131 | AE005122 | 726000A073 | SHEET,CAUTION |
| 132 | AD301574 | 744WUA0013 | SPRING,EARTH |
| 133 | AE005981 | 752WSAA083 | ANGLE,FRONT |
| 134 | BZ710259 | 762WPA0011 | HOLDER,CRT WIRE |
| 135 | BZ710260 | 899HV3T000 | HOLDER,ANODE WIRE |
| 136 | AE006242 | 722000A266 | SHEET,HWC |
| 137 | AE007091 | 726000A083 | SHEET,CRT SERVICEMAN |
| 138 | BZ710618 | 755WPAA012 | PLATE,COVER LIGHT (L) |
| 139 | AE007096 | 723000C885 | SHEET,BAR CODE |
| 140 | AE005914 | 791WHAA114 | FILM BAG |
| 141 | AE003117 | 792WHA0522 | PACKAGE,TOP |
| 142 | AE003118 | 792WHA0523 | PACKAGE,BOTTOM |
| 143 | AE007097 | 793WCDC697 | GIFT BOX |
| 144 | AE006986 | A5T404Q975 | INSTRUCTION BOOK KIT |
| 145 | AE005715 | JB5KD200 | POLYBAG,INSTRUCTION(RED CAUTION) |
| 147 | AE005543 | J2E50729A | INFORMATION SHEET |
| 149 | AE006987 | J5T40421A | INSTRUCTION BOOK(E/F) |
| 150 | AE007094 | 795WCDA019 | PAD |

# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| 201 | AE005916 | 8141J50C5U | SCREW,TAP TITE(P) GW22 | 5x35 |
| 202 | AE004847 | 8117540A6U | SCREW,TAP TITE(B0) TRUSS | 4x16 |
| 203 | AE003523 | 811754080U | SCREW,TAP TITE(B0) TRUSS | 4x8 |
| 204 | AE005536 | 8109130B9U | SCREW,TAP TITE(B) R PAN | 3x29 |
| 205 | AE003524 | 8109I30A0U | SCREW,TAP TITE(B) WH7 | 3x10 |
| 206 | AE003530 | 811022680U | SCREW,TAP TITE(P) BIND | 2.6x8 |
| 207 | AE005917 | 810963080Q | SCREW,TAP TITE(B) BRAZIER | 3x8 |
| 208 | AE003526 | 810923080U | SCREW,TAP TITE(B) BIND | 3x8 |
| 209 | AE005989 | 8107630A8U | SCREW,TAP TITE(S) BRAZIER | 3x18 |
| 210 | AE003531 | 810763080U | SCREW,TAP TITE(S) BRAZIER | 3x8 |
| 211 | AE005987 | 810723060U | SCREW,TAP TITE(S) BIND | 3x6 |
| 212 | AE003529 | 811063080U | SCREW,TAP TITE(P) BRAZIER | 3x8 |
| 213 | AE005541 | 810F13080U | SEMS(F) | 3x8 |
| 214 | AE003532 | 810723040U | SCREW,TAP TITE(S) BIND | 3x4 |

# CHASSIS REPLACEMENT PARTS LIST

| | Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|---|
| | 300 | AE006988 | A5T7016420A | DECK ASSY | A5T7016420A |
| | 301 | AE005514 | 85OA400245 | PINCH ROLLER BLOCK VA2 | |
| | 302 | BZ710682 | 85OA500026 | AHC ASS'Y | |
| | 303 | BZ710193 | 85OP200290 | BELT,CAPSTAN (S) | |
| | 304 | BZ710515 | 85OP600581 | WORM | |
| | 305 | AE005919 | 85OP500091 | BASE,AC HEAD | |
| | 306 | BZ710112 | 85OP800324 | SPRING,AC HEAD | |
| | 307 | AE005835 | 85OA000528 | MAIN CHASSIS ASS'Y | |
| | 308 | BZ710517 | 85OA200089 | CLUTCH ASS'Y | |
| | 309 | AE005920 | 85OA200092 | ARM IDLER ASS'Y | |
| | 310 | AE005836 | 85OA300068 | LOADING ARM S UNIT | |
| | 311 | AE005837 | 85OA300070 | LOADING ARM T UNIT | |
| | 312 | BZ710521 | 85OA400223 | INCLINED BASE T UINT 3S | |
| | 313 | AE005838 | 85OA400249 | P5 ARM ASS'Y 2 | |
| | 314 | AE005839 | 85OA400248 | TENSION ARM ASS'Y 2 | |
| | 315 | BZ710524 | 85OA400231 | INCLINED BASE S UNIT | |
| | 316 | AE005840 | 85OA900234 | CASS HOLDER ASS'Y | |
| | 317 | BZ710552 | 85OP900745 | CASS,OPENER | |
| | 318 | BZ710106 | 85OP700035 | REFLECTOR,LED | |
| | 319 | AE005841 | 85OP900755 | BRACKET,TOP 3V | |
| | 320 | AE004275 | 85OP400549 | HOLDER,CAPSTAN | |
| | 321 | AE005842 | 85OA900233 | LINK UNIT | |
| | 322 | BZ710531 | 85OP000496 | POST,CASS GUIDE | |
| | 323 | BZ710532 | 85OP200316 | REEL,S (S) | |
| | 324 | BZ710533 | 85OP200317 | REEL,T (S) | |
| | 325 | BZ710534 | 85OP200308 | GEAR,IDLER | |
| | 326 | BZ710535 | 85OP200311 | GEAR,CLUTCH | |
| | 327 | BZ710536 | 85OP200312 | GEAR,COUPLING | |
| | 328 | BZ710537 | 85OP200313 | LEVER,CLUTCH | |
| | 329 | BZ710538 | 85OP300194 | GEAR,MAIN LOADING | |
| | 330 | BZ710092 | 85OP400490 | LEVER,TENSION | |
| | 331 | BZ710093 | 85OP400492 | HOLDER,TENSION | |
| | 332 | BZ710366 | 85OP400520 | CAP.P4 | |
| | 333 | BZ710762 | 85OP400542 | BAND,TENSION | |
| | 334 | BZ710540 | 85OP400533 | CONNECT,TENSION | |
| | 335 | BZ710541 | 85OP600573 | ARM,BRAKE T | |
| | 336 | BZ710763 | 85OP600584 | BAND,BRAKE T | |
| | 337 | BZ710543 | 85OP600577 | CAM,PINCH ROLLER | |
| | 338 | BZ710544 | 85OP600578 | CAM,MAIN | |
| | 339 | AE005843 | 85OP600585 | ROD,MAIN | |
| | 340 | BZ710546 | 85OP600582 | GEAR,JOINT | |
| | 341 | BZ710110 | 85OP800322 | SPRING,TENSION | |
| | 342 | BZ710547 | 85OP800360 | SPRING,BRAKE T | |
| | 343 | BZ710548 | 85OP800355 | SPRING,COUPLING | |
| | 344 | BZ710549 | 85OP800356 | SPRING,RING | |
| | 345 | AE005844 | 85OP900754 | LEVER,LINK | |
| | 346 | BZ710551 | 85OP900744 | LEVER,FLAP | |
| | 501 | AE005845 | 810722680U | SCREW,TAP TITE(S) BIND | M2.6x8 |
| | 502 | AE005846 | 83ETW3000U | E-RING | 3.0 |
| | 503 | AE005847 | 810722640U | SCREW,TAP TITE(S) BIND | M2.6x4 |
| | 504 | AE005848 | 810212060U | SCREW,PAN | M2x6 |
| | 505 | AE005849 | 810912660U | SCREW,TAP TITE(B) PAN | M2.6x6 |
| | 506 | AE005850 | 810A13040U | SCREW/WASHER(A) | M3x4 |
| | 507 | AE005851 | 810A12650U | SCREW/WASHER(A) | M2.6x5 |
| | 508 | BZ710056 | 82Q264713N | POLYSLIDER WASHER | 2.6x4.7xT0.13 |
| | 509 | BZ710054 | 82P184505N | POLYSLIDER WASHER(CUT) | 1.8x4.5xT0.5 |
| | 510 | AE005540 | 810722660U | SCREW,TAP TITE(S) BIND | 2.6x6 |
| | CD1501 | BZ614292 | 122H071704 | CORD JUMPER | 2H071704 |
| | CD1502 | AD301953 | 122Y021002 | CORD JUMPER | 2Y021002 |
| | H5001 | AD301675 | 1523Q91003 | HEAD (AUDIO CONTROL) | VTR-1X2RPE22-756 |
| | H5002 | AD301676 | 1543Q02014 | HEAD (FULL ERASE) | VTR-1X2ERS11-154 |
| ⚠ | M101 | AE005552 | 1596S98002 | MOTOR,LOADING | MDB2B66B |
| ⚠ | M2001 | AE005853 | 1510S98044 | CAPSTAN DD UNIT | F2QVB73B |
| | M2003 | AE006792 | 1589S11025 | MICRO MOTOR | I20AL34K |
| ⚠ | UN4001 | AE006989 | A5T7016500 | CYLINDER UNIT ASS'Y | A5T7016500 |

# DVD DECK REPLACEMENT PARTS LIST

| | Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|---|
| ⚠ | 600 | AE006521 | A2F401H650 | DVD MECHA ASS'Y | A2F401H650 |
| | 601 | AE005003 | 92P100109A | HOLDER,TRAVERSE | |
| | 602 | AE003550 | 92P100094A | CLAMPER | |
| | 603 | AE003551 | 92P100088A | GEAR,MOTOR | |
| | 604 | AE005414 | 92P100108A | GEAR,MIDDLE | |
| | 605 | AE003538 | 92P200013A | INSULATOR(F) | |
| | 606 | AE003539 | 92P200014A | INSULATOR(R) | |
| | 607 | AE006115 | 92SBB0029A | LOADER SUB ASS'Y | |
| | 608 | AE003541 | 92P100095A | GEAR,PULLEY | |
| | 609 | AE003542 | 92P100097A | PULLEY,MOTOR | |
| | 610 | AE003549 | 92P100096A | GEAR,MAIN | |
| | 611 | AE003544 | 92P200012A | BELT,LOADING | |
| | 612 | AE003545 | 92P000014A | PLATE,CLAMPER | |
| | 613 | AE003546 | 92P100093A | RACK,LOADING | |
| | 614 | AE003547 | 92P100091A | FRAME,MAIN | |
| | 615 | AE003548 | 92P100092A | TRAY | |
| | 616 | BZ710149 | 800WFAA008 | CUSHION C | |
| | 701 | AE003530 | 811022680U | SCREW,TAP TITE(P) BIND | 2.6x8 |
| | 702 | AE003554 | 814011723U | SCREW,PAN | M1.7x2.3 P3 |
| | 703 | AE003555 | 816112080U | SEMS.TAP TITE(P) PAN W10 | 2x8 |
| | 704 | AE003556 | 814011730U | SCREW,PAN | M1.7x3 P3 |
| | 705 | AE003557 | 811022080U | SCREW,TAP TITE(P) BIND | 2x8 |
| | CD2001 | AD301855 | 122H0O1901 | CORD JUMPER | 2H0O1901 |
| | CD2301 | AE003558 | 122H062102 | CORD JUMPER | 2H062102 |
| | CD2302 | AE003559 | 122H052601 | CORD JUMPER | 2H052601 |
| ⚠ | M2602 | AE005930 | 1515S98003 | FEED MOTOR | BCZ3B03B |
| ⚠ | M2603 | AE005931 | 1596S18003 | MOTOR,LOADING | BCZ3B52B |
| | PCB610 | AE005932 | A5R801V610 | PCB ASS'Y | DED003A |
| | PCB640 | AE006740 | A2F401H640 | PCB ASS'Y | DED012B |
| | SW1 | AE003564 | 0515S32002 | SWITCH | SSS-13-2 |
| | SW2 | AE003565 | 0500101037 | PUSH SWITCH | ESE22MH24 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | | Description |
|---|---|---|---|---|
| | | **RESISTORS** | | |
| ⚠R401 | BZ210244 | R4X5T6562F | R,METAL | 5.6K OHM 1/6W |
| ⚠R403 | BZ210231 | R4X5T6153F | R,METAL | 15K OHM 1/6W |
| ⚠R405 | BZ210231 | R4X5T6153F | R,METAL | 15K OHM 1/6W |
| ⚠R406 | AD302023 | R3X28A181J | R,METAL | 180 OHM 2W |
| ⚠R412 | BZ210021 | R65582680J | R,FUSE | 68 OHM 1/2W |
| ⚠R417 | AD302023 | R3X28A181J | R,METAL | 180 OHM 2W |
| ⚠R423 | BZ210165 | R3X18AR56J | R,METAL OXIDE | 0.56 OHM 2W |
| ⚠R429 | BZ210150 | R002T2010J | RC | 1 OHM 1/2W |
| ⚠R430 | AD301920 | R5X34F2R7J | R,CEMENT | 2.7 OHM 10W |
| ⚠R440 | AD301921 | R5X34F332J | R,CEMENT | 3.3K OHM 10W |
| ⚠R445 | BZ210104 | R6558A2R7J | R,FUSE | 2.7 OHM 2W |
| ⚠R454 | BZ210003 | R3K181102J | R,METAL OXIDE | 1K OHM 1W |
| ⚠R814 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R815 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R816 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R1701 | BZ210206 | R002T2155J | RC | 1.5M OHM 1/2W |
| ⚠R1702 | BZ210080 | R0G3K2275K | RC | 2.7M OHM 1/2W |
| ⚠R1706 | AD300651 | R002T4272J | RC | 2.7K OHM 1/4W |
| ⚠R1714 | BZ210248 | R3X181R15J | R,METAL OXIDE | 0.15 OHM 1W |
| ⚠R1717 | BZ210249 | R3X28A331J | R,METAL OXIDE | 330 OHM 2W |
| ⚠R1718 | BZ210031 | R5X2CE1R2J | R,CEMENT | 1.2 OHM 7W |
| ⚠R1720 | AE005735 | R63881R22J | R,FUSE | 0.22 OHM 1W |
| ⚠R3010 | AD302206 | R3X181180J | R,METAL OXIDE | 18 OHM 1W |
| ⚠R3021 | AE000147 | R3X181220J | R,METAL OXIDE | 22 OHM 1W |
| ⚠R3028 | BZ210204 | R3X1814R7J | R,METAL OXIDE | 4.7 OHM 1W |
| | | **CAPACITORS** | | |
| C005 | AE007076 | E02LF0102M | CE | 1000 UF 6.3V |
| C321 | BZ210176 | E02LF3222M | CE | 2200 UF 25V |
| ⚠C403 | BZ110195 | E02LU8220M | CE | 22 UF 100V |
| C404 | AE004798 | E61DFB470M | CE | 47 UF 160V |
| ⚠C408 | BZ210157 | P4N8FJ562H | CMPP | 0.0056UF 1.25KV |
| C412 | BZ210173 | P4J7F3474J | CMPP | 0.47 UF 250V PMS |
| ⚠C418 | AE007077 | P4G8FJ682H | CMPP | 0.0068UF 1.25KV PHE |
| ⚠C429 | AD301434 | E02LU4101M | CE | 100 UF 35V |
| ⚠C430 | BZ110101 | E5EZF3222M | CE | 2200 UF 25V |
| ⚠C434 | BZ110055 | E5EZF4102M | CE | 1000 UF 35V |
| ⚠C446 | BZ110225 | E5EZFD220M | CE | 22 UF 250V |
| C449 | BZ110202 | C0PLRR713K | CC | 0.001 UF 2KV R |
| C801 | AD301321 | CQG0CH412J | CC | 100 PF 50V CH |
| C820 | BZ110247 | C0JBB0713K | CC | 0.001 UF 2KV B |
| ⚠C1701 | BZ110025 | P2122B224M | CMP | 0.22 UF 275V ECQUL |
| C1705 | AE000699 | C0PLRR7S2K | CC | 560 PF 2KV R |
| C1707 | BZ110203 | C0PLRR7W2K | CC | 820 PF 2KV RR |
| ⚠C1708 | BZ110226 | C0JBB07H3K | CC | 0.0022UF 2KV B |
| ⚠C1710 | BZ110226 | C0JBB07H3K | CC | 0.0022UF 2KV B |
| ⚠C1711 | AE002878 | CD39E0MQ3M | CC | 0.0047UF 250V |
| ⚠C1714 | AE000700 | E52DHC681M | CE | 5 680 UF 200V |
| ⚠C1716 | BZ110010 | E02L03222M | CE | 2200 UF 25V |
| ⚠C1717 | BZ110055 | E5EZF4102M | CE | 1000 UF 35V |
| ⚠C1720 | AE006083 | E61DFB221M | CE | 220 UF 160V |
| ⚠C1728 | AE001253 | E02L01222M | CE | 2200 UF 10V |
| C1729 | AE000699 | C0PLRR7S2K | CC | 560 PF 2KV R |
| ⚠C1732 | BZ110078 | E02L03102M | CE | 1000 UF 25V |
| ⚠C1733 | AE000467 | E02LU54R7M | CE | 4.7 UF 50V |
| | | **DIODES** | | |
| D101 | AD301638 | 0010E00330 | INFRARED LED | LTE-3271T-012A-O |
| D102 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D103 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D105 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D106 | BZ410094 | D97U01501B | DIODE,ZENER | MTZJ15B T-77 |
| D108 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D402 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| D403 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D404 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D408 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D410 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D411 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| ⚠D412 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| D413 | BZ410019 | D97U03001B | DIODE,ZENER | MTZJ30B T-77 |
| D414 | BZ410019 | D97U03001B | DIODE,ZENER | MTZJ30B T-77 |
| ⚠D415 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | | Description |
|---|---|---|---|---|
| | | **DIODES** | | |
| D416 | BZ410085 | D2WXN40050 | DIODE,SILICON | 1N4005-EIC |
| D417 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D418 | BZ410037 | D97U03301B | DIODE,ZENER | MTZJ33B T-77 |
| D419 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D601 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D602 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D603 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D605 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D801 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D802 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D803 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D804 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D805 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D806 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1702 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1703 | AE000141 | D97U02R71B | DIODE,ZENER | MTZJ2.7B T-77 |
| ⚠D1704 | BZ410007 | D23TGP15J0 | DIODE,SILICON | RGP15J-G23 |
| ⚠D1705 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1706 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1707 | BZ410007 | D23TGP15J0 | DIODE,SILICON | RGP15J-G23 |
| D1709 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1710 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1711 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| D1712 | BZ410067 | D97U02R21B | DIODE,ZENER | MTZJ2.2B T-77 |
| ⚠D1713 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D1715 | AD300671 | D97U01801B | DIODE,ZENER | MTZJ18B T-77 |
| D1716 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| D1717 | AD300671 | D97U01801B | DIODE,ZENER | MTZJ18B T-77 |
| ⚠D1718 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| ⚠D1719 | BZ410115 | D2LKB340L0 | DIODE,SCHOTTKY | SB340L-6737 |
| D1720 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1721 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1722 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| ⚠D1723 | AD301980 | D2CF2016L0 | DIODE,SILICON | FE201-6L49 |
| D1724 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1726 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1727 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D1728 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1730 | AD301980 | D2CF2016L0 | DIODE,SILICON | FE201-6L49 |
| D1732 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D1733 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1734 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D2201 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D2205 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2206 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2207 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2303 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D2304 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D3001 | BZ410037 | D97U03301B | DIODE,ZENER | MTZJ33B T-77 |
| D3002 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D3003 | BZ410090 | D97U04R71B | DIODE,ZENER | MTZJ4.7B T-77 |
| D3004 | BZ410077 | D2WXSB1400 | DIODE,SCHOTTKY | SB140-EIC |
| D3005 | BZ410012 | D28TQS04N0 | DIODE,SCHOTTKY | 11EQS04N-TA1B2 |
| D3007 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D3008 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D3011 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D4001 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4002 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4003 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4004 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4005 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4201 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D4204 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D4205 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D4207 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D5501 | BZ410012 | D28TQS04N0 | DIODE,SCHOTTKY | 11EQS04N-TA1B2 |
| D5502 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D8101 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D8111 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D8112 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **ICS** | | |
| IC101 | AE006547 | I51F58078A | IC | OEC8078A |
| IC103 | AD301641 | I9UF032310 | IC | PST3231NR |
| IC199 | AE007071 | A5T403Q015 | INIT DATA | BR24L04F-WE2 |
| IC302 | AD301983 | I01FF58910 | IC | AN5891SA-E1V |
| ⚠IC352 | AD302184 | I0FSP7522N | IC | AN7522N |
| ⚠IC401 | BZ611025 | I03TD80400 | IC | LA78040 |
| IC601 | AE004116 | I03FC319N0 | IC | LA76319NM-MPB-E |
| IC602 | AE000143 | I1KF98L100 | IC | KIA78L10F-RTF |
| IC1501 | AE006220 | I05FEA45FG | IC | TC90A45FG |
| IC1502 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC1504 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC1505 | AD301927 | I0UF015040 | IC | MM1504XNRE |
| ⚠IC1701 | AE002809 | 000220002W | PHOTO COUPLER | PS2561AL1-1-V(W) |
| ⚠IC1702 | AD302211 | I1KJ9A431A | IC | KIA431A-AT |
| IC2301 | AE003581 | I03F065650 | IC | LA6565-TE-L-E |
| IC2304 | AE005769 | I07J003580 | IC | BA10358FV-E2 |
| ⚠IC3001 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| ⚠IC3002 | AD301929 | I1KA78R090 | IC | KIA278R09PI |
| ⚠IC3003 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| IC3004 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| IC4001 | AE005760 | ICQK068620 | IC | ZR36862PQCG |
| IC4002 | AE005421 | I57J0L02F0 | IC | BR24L02F-WE2 |
| IC4003 | AE006061 | I07F9E00W0 | IC | BA33E00WHFP-TR |
| IC4007 | AE007078 | S5T403QF01 | MEMORY DATA | SST39VF800A-70-4C-EKE |
| IC4008 | AE006454 | IFLJ0622H6 | IC | K4S161622H-UC60 |
| IC4009 | AE006454 | IFLJ0622H6 | IC | K4S161622H-UC60 |
| IC4501 | BZ611095 | I03F3205M0 | IC | LA71205M-MPB |
| IC5501 | BZ611114 | I01F63FBP0 | IC | AN3663FBP |
| IC8001 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC8002 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC8004 | AE001295 | I0QJ045800 | IC | NJM4580M(TE1) |
| IC8102 | AE003584 | I17F017530 | IC | PCM1753DBQR |
| | | **TRANSISTORS** | | |
| Q101 | BZ410097 | 0000M00390 | PHOTO TRANSISTOR | ST-304L |
| Q102 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q103 | BZ410097 | 0000M00390 | PHOTO TRANSISTOR | ST-304L |
| Q104 | BZ410106 | 0002700680 | PHOTO COUPLER | RPI-352C40N |
| Q105 | BZ410106 | 0002700680 | PHOTO COUPLER | RPI-352C40N |
| Q106 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q107 | BZ410107 | 0002700690 | PHOTO COUPLER | RPI-303 |
| Q108 | BZ410107 | 0002700690 | PHOTO COUPLER | RPI-303 |
| Q110 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q112 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q114 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q116 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q350 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q401 | BZ510097 | TCAT03227Y | TRANSISTOR,SILICON | KTC3227_Y-AT |
| ⚠Q403 | BZ510040 | TDUU024990 | TRANSISTOR,SILICON | 2SD2499(LB0EC1) |
| ⚠Q406 | BZ510004 | TA3T016240 | TRANSISTOR,SILICON | 2SA1624-AA |
| Q407 | BZ510096 | TNATB03005 | COMPOUND TRANSISTOR | KRC102MAT |
| Q408 | BZ510087 | TCAT032070 | TRANSISTOR,SILICON | KTC3207-AT |
| Q409 | BZ510004 | TA3T016240 | TRANSISTOR,SILICON | 2SA1624-AA |
| Q601 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q602 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q605 | BZ510090 | TPAAB05001 | COMPOUND TRANSISTOR | KRA102SRTK |
| Q606 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q802 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q803 | BZ510100 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| ⚠Q804 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q805 | BZ510100 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| ⚠Q806 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q807 | BZ510100 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| Q1501 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1502 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1503 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1702 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| ⚠Q1705 | BZ510098 | T220033260 | FET | 2SK3326(2) |
| ⚠Q1706 | BZ510070 | TCAT032034 | TRANSISTOR,SILICON | KTC3203_Y-AT |
| Q2201 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q2202 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q2203 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **TRANSISTORS** | | |
| Q2301 | BZ510112 | T67J1036K0 | TRANSISTOR,SILICON | 2SA1036KT146 |
| Q2302 | AE003592 | T67J048TL0 | TRANSISTOR,SILICON | 2SA2048TL |
| Q2303 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q2304 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q2305 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q3001 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3002 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| ⚠Q3003 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3004 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3005 | AD301934 | TBA0013660 | TRANSISTOR,SILICON | KTB1366(O,Y) |
| Q3006 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3007 | BZ510057 | TAAT01281Y | TRANSISTOR,SILICON | KTA1281_Y |
| Q3008 | BZ510107 | TPAAA05001 | COMPOUND TRANSISTOR | KRA101SRTK |
| Q3009 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q3010 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3011 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3014 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3015 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4004 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4201 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4202 | BZ510072 | TPAAC05002 | COMPOUND TRANSISTOR | KRA103SRTK |
| Q4203 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4204 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q4210 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q4211 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4212 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q4501 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4502 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4503 | BZ510072 | TPAAC05002 | COMPOUND TRANSISTOR | KRA103SRTK |
| Q4504 | BZ510070 | TCAT032034 | TRANSISTOR,SILICON | KTC3203_Y-AT |
| Q4505 | BZ510073 | TAATA12660 | TRANSISTOR,SILICON | KTA1266-AT(Y,GR) |
| Q4506 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4507 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4509 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q4511 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q8002 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q8006 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q8007 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q8101 | BZ510021 | TNYJC05001 | COMPOUND TRANSISTOR | DTC124EKAT146 |
| | | **COILS &TRANSFORMERS** | | |
| L001 | BZ310001 | 021673101J | COIL | 100 UH |
| L301 | BZ310005 | 02167D101K | COIL | 100 UH |
| L402 | BZ310063 | 022100027A | COIL,LINEARITY | ELH5L4113 |
| L403 | BZ310004 | 021679472K | COIL | 4.7 MH |
| L601 | BZ310041 | 02167F101J | COIL | 100 UH |
| L602 | BZ310005 | 02167D101K | COIL | 100 UH |
| L603 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L604 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L804 | BZ310005 | 02167D101K | COIL | 100 UH |
| L1501 | BZ310141 | 02167F100J | COIL | 10 UH |
| L1502 | BZ310043 | 021LA6150K | COIL | 15 UH |
| L1504 | BZ310170 | 021673151K | COIL | 150 UH |
| L1505 | BZ310042 | 021LA6101K | COIL | 100 UH |
| L1506 | BZ310042 | 021LA6101K | COIL | 100 UH |
| ⚠L1701 | AE003611 | 029X000116 | COIL,LINE FILTER | SS28V-R20130 |
| ⚠L1703 | BZ310066 | 028R200024 | COIL,DEGAUSS | 8R200024 |
| L1704 | AD301539 | 02AHB0A0A4 | CORE,FERRITE | W5T_20X10X10A |
| L3001 | AD301785 | 02167E100K | COIL | R6-1 10 UH |
| L4001 | BZ310191 | 02167F2R2J | COIL | 2.2 UH |
| L4002 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L4205 | BZ310041 | 02167F101J | COIL | 100 UH |
| L4502 | BZ310114 | 031626009R | COIL,BIAS OSC | 1626009 |
| L4504 | BZ310041 | 02167F101J | COIL | 100 UH |
| L4505 | BZ310040 | 02167F470J | COIL | 47 UH |
| L4506 | BZ310040 | 02167F470J | COIL | 47 UH |
| L4509 | BZ310005 | 02167D101K | COIL | 100 UH |
| L5501 | BZ310042 | 021LA6101K | COIL | 100 UH |
| L5502 | BZ310039 | 02167F220J | COIL | 22 UH |
| L5503 | BZ310039 | 02167F220J | COIL | 22 UH |
| L5504 | BZ310039 | 02167F220J | COIL | 22 UH |
| L8001 | BZ310041 | 02167F101J | COIL | 100 UH |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **COILS &TRANSFORMERS** | | |
| L8002 | BZ310042 | 021LA6101K | COIL | 100 UH |
| L8003 | BZ310041 | 02167F101J | COIL | 100 UH |
| L8102 | AE000828 | 02167F1R0K | COIL | 1 UH |
| L8103 | AE000828 | 02167F1R0K | COIL | 1 UH |
| L8104 | AE000828 | 02167F1R0K | COIL | 1 UH |
| T401 | BZ310172 | 045013003J | TRANS,HORIZONTAL DRIVE | ETH14Y47AY |
| ⚠T1701 | AD301935 | 048142065S | TRANSFORMER,SWITCHING | 8142065S |
| | | **JACKS** | | |
| ⚠J801 | AD301936 | 066F130021 | SOCKET,CATHODE RAY,TUBE | ISHS62S |
| ⚠J2201 | AE003431 | 060J131016 | HEADPHONE JACK | MSJ-2000_AG |
| J2202 | AE002949 | 060J421036 | RCA JACK | MTJ-032-05A-30-FE |
| J2203 | AE002950 | 060J421037 | RCA JACK | MTJ-032-05A-32-FE |
| J2204 | AE002951 | 060J421030 | RCA JACK | MTJ-032-05A-31-FE |
| J4201 | AE002759 | 060J431020 | RCA JACK | MSP-213V2-432_NI_LF |
| J4202 | AE002758 | 060J411031 | RCA JACK | MSP-213V1-432_NI_LF |
| J8007 | AE003568 | 060J401102 | RCA JACK | MSP-251V-05NI-FE-LF |
| | | **SWITCHES** | | |
| SW101 | BZ612016 | 0508S11001 | SWITCH (LEAF) | LSA-1144EAU |
| SW2201 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2202 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2203 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2204 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2205 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2206 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2207 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2251 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2252 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2253 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2254 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2255 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2256 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2257 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2258 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| | | **VARIABLE RESISTORS** | | |
| VR404 | BZ210218 | V1K63H3BTE | VOLUME,SEMI FIXED | NVG6TLTAB222 |
| VR1701 | AD301937 | V1K6314BTE | VOLUME,SEMI FIXED | NVG6TLTAB103 |
| | | **P.C.BOARD ASSEMBLIES** | | |
| PCB010 | AE007070 | A5T403Q010 | PCB ASS'Y | DME034A |
| PCB080 | AE007072 | A5T403Q080 | PCB ASS'Y | CME029A |
| PCB110 | AE007073 | A5T403Q110 | PCB ASS'Y | CCE024A |
| PCB130 | AE007074 | A5T403Q130 | PCB ASS'Y | DME031A |
| PCB270 | AE007075 | A5T403Q270 | PCB ASS'Y | CEE055A |
| | | **MISCELLANEOUS** | | |
| B401 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B402 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B403 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B1703 | BZ310129 | 024HT03564 | CORE,BEADS | W4BRH3.5X6X1.0 |
| B2201 | BZ310129 | 024HT03564 | CORE,BEADS | W4BRH3.5X6X1.0 |
| B2301 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2302 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2303 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2304 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2305 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4001 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4002 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4003 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4005 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4006 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4007 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4008 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4009 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4010 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4011 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4012 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4013 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4014 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4016 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4018 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B8001 | BZ310122 | 024HT03563 | CORE,BEADS | W4BRH3.5X6X1.0X2 |
| B8103 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| BL001 | BZ310014 | 023C00022A | COIL BALUN | HPN-01 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **MISCELLANEOUS** | | |
| BT001 | AE005640 | 141R004016 | BATTERY,MANGAN | GR03X-SP2 |
| BT002 | AE005640 | 141R004016 | BATTERY,MANGAN | GR03X-SP2 |
| CD002 | BZ614411 | 06CU011902 | CORD,CONNECTOR | CU011902 |
| CD303 | AE006531 | 06C3149004 | CORD,CONNECTOR | C3149004 |
| CD602 | AD302218 | 06CU291701 | CORD,CONNECTOR | CU291701 |
| CD603 | AE000133 | 06CU284501 | CORD,CONNECTOR | CU284501 |
| CD604 | AE000132 | 06CU282401 | CORD,CONNECTOR | CU282401 |
| CD802 | BZ614310 | WCL6844038 | FLAT CABLE AWM2468 A | WG26 5C GRAY 440MM |
| CD803 | AE005637 | 06CH823004 | CORD,CONNECTOR | CH823004 |
| CD805 | AE005637 | 06CH823004 | CORD,CONNECTOR | CH823004 |
| CD806 | AE007068 | 06CH013601 | CORD,EIS CONNECTOR | CH013601 |
| CD807 | AE007050 | 06CH012801 | CORD,EIS CONNECTOR | CH012801 |
| CD808 | AE006534 | 06CH011202 | CORD,EIS CONNECTOR | CH011202 |
| CP001 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP101 | BZ614289 | 06972C0010 | CONNECTOR PCB SIDE | TMC-J12P-B2 |
| CP303 | AD301045 | 069S140419 | CONNECTOR PCB SIDE | A2502WV2-4P |
| ⚠CP404 | BZ614303 | 069S450089 | CONNECTOR PCB SIDE | A1561WV2-A5P |
| CP601 | AD301943 | 069S240639 | CONNECTOR PCB SIDE | A2001WR2-4P |
| CP602 | BZ614462 | 067U009039 | WIRE HOLDER | B2013H02-9P |
| CP603 | AD301944 | 067U008029 | WIRE HOLDER | B2013H02-8P |
| CP604 | AD301796 | 069S280629 | CONNECTOR PCB SIDE | A2001WV2-8P |
| CP803 | BZ614269 | 069S320010 | CONNECTOR PCB SIDE | A2361WV2-2P |
| CP805 | BZ614269 | 069S320010 | CONNECTOR PCB SIDE | A2361WV2-2P |
| ⚠CD1702 | AE006538 | 1209415910 | CORD,AC BUSH | 9415910 |
| CD1705 | AE006535 | 06CH012403 | CORD,EIS CONNECTOR | CH012403 |
| CD2251 | AE006532 | 06C3220703 | CORD,CONNECTOR | C3220703 |
| CD4002 | AE005945 | 06C32B3303 | CORD,CONNECTOR | C32B3303 |
| CD4501 | BZ614373 | 122F061502 | CORD,JUMPER | 2F061502 |
| CD4503 | AE007029 | W9L6012042 | FLAT CABLE AWM2468 A | WG26 2C BLACK 120MM |
| CD8101 | AE000134 | 122H0C2204 | CORD,JUMPER | 2H0C2204 |
| CP1702 | AD301944 | 067U008029 | WIRE HOLDER | B2013H02-8P |
| ⚠CP1704 | BZ614283 | 069S420110 | CONNECTOR PCB SIDE | A1561WV2-2P |
| CP1707 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP1708 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP2201 | BZ614416 | 069S220629 | CONNECTOR PCB SIDE | A2001WV2-2P |
| CP2301 | AE003571 | 069GYOT119 | CONNECTOR PCB SIDE | 09-5000-024-001-001 |
| CP2302 | AE005934 | 069EV53030 | CONNECTOR PCB SIDE | 00_6232_005_006_800+ |
| CP2303 | AE005935 | 069EV63030 | CONNECTOR PCB SIDE | 00_6232_006_006_800+ |
| CP4501 | BZ614011 | 0697290620 | CONNECTOR PCB SIDE | TOC-C09X-A1 |
| CP4502 | BZ614050 | 069J760029 | CONNECTOR PCB SIDE | IMSA-9604S-06Z14 |
| CP4503 | AD301649 | 067U002019 | WIRE HOLDER | B2013H02-2P |
| CP602B | BZ614458 | 069S290629 | CONNECTOR PCB SIDE | A2001WV2-9P |
| CP603B | AD301796 | 069S280629 | CONNECTOR PCB SIDE | A2001WV2-8P |
| CP8001 | BZ614214 | 069S2B0629 | CONNECTOR PCB SIDE | A2001WV2-11P |
| CP8002 | AD301797 | 069J7C0029 | CONNECTOR PCB SIDE | IMSA-9604S-12Z14 |
| CP802A | BZ614276 | 067U005049 | WIRE HOLDER | B2013H02-5P |
| CP802B | BZ614276 | 067U005049 | WIRE HOLDER | B2013H02-5P |
| CP8101 | AE006053 | 069J7C0589 | CONNECTOR PCB SIDE | IMSA-9604S-12F |
| CUS011 | BZ710148 | 800WFAA007 | CUSHION B | |
| CUS012 | BZ710149 | 800WFAA008 | CUSHION C | |
| EL001 | BZ614044 | 124120301A | EYE LET | XRY20X30BD |
| EL002 | BZ614043 | 124116281A | EYE LET | XRY16X28BD |
| EL003 | BZ614044 | 124120301A | EYE LET | XRY20X30BD |
| EL004 | BZ614043 | 124116281A | EYE LET | XRY16X28BD |
| ⚠F1701 | BZ614422 | 081PC6R305 | FUSE | 51MS063L |
| ⚠FB401 | AE006458 | 043220059F | TRANSFORMER,FLYBACK | FJN20A003_M |
| FH1701 | AE002634 | 06710T0009 | HOLDER,FUSE | EYF-52BCY |
| FH1702 | AE002634 | 06710T0009 | HOLDER,FUSE | EYF-52BCY |
| OS2201 | AD301949 | 0773071003 | REMOTE RECEIVER | RPM7138-WH10 |
| ⚠RY1701 | AD300114 | 0560V20115 | RELAY | ALKS321 |
| ⚠SP351 | AE006459 | 070N546012 | SPEAKER | YDP4010-2 |
| ⚠SP352 | AE006459 | 070N546012 | SPEAKER | YDP4010-2 |
| TM101 | AE006991 | 076D0KH010 | TRANSMITTER | ORT204N7404360-U |
| ⚠TU001 | AE006069 | 0163300018 | RF UNIT | 115-V-KA35ARB |
| ⚠TH1701 | BZ410079 | DF5EL3R0A0 | DEGAUSS ELEMENT | ZPB45BL3R0A |
| ⚠V801 | AE007069 | 098S210461 | CRT W/DY | A51QDJ420X58 |
| X101 | BZ613006 | 100DA32R01 | CRYSTAL | DT-26 |
| X102 | BZ613033 | 100CT01403 | CRYSTAL | HC-49/U-S |
| X601 | AD301951 | 100CT3R532 | CRYSTAL | HC-49/U-S |
| X4001 | AD301803 | 100BT02701 | CRYSTAL | HC-49U/S |
| X4501 | BZ613017 | 100CT3R502 | CRYSTAL | HC-49/U |

# ELECTRICAL REPLACEMENT PARTS LIST

RESISTOR

| | |
|---|---|
| RC..... | CARBON RESISTOR |

CAPACITORS

| | |
|---|---|
| CC..... | CERAMIC CAPACITOR |
| CE..... | ALUMI ELECTROLYTIC CAPACITOR |
| CP..... | POLYESTER CAPACITOR |
| CPP..... | POLYPROPYLENE CAPACITOR |
| CPL..... | PLASTIC CAPACITOR |
| CMP..... | METAL POLYESTER CAPACITOR |
| CMPL..... | METAL PLASTIC CAPACITOR |
| CMPP..... | METAL POLYPROPYLENE CAPACITOR |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | | Description |
|---|---|---|---|---|
| | | **RESISTORS** | | |
| ⚠R401 | BZ210244 | R4X5T6562F | R,METAL | 5.6K OHM 1/6W |
| ⚠R403 | BZ210231 | R4X5T6153F | R,METAL | 15K OHM 1/6W |
| ⚠R405 | BZ210231 | R4X5T6153F | R,METAL | 15K OHM 1/6W |
| ⚠R406 | AD302023 | R3X28A181J | R,METAL | 180 OHM 2W |
| ⚠R412 | BZ210021 | R65582680J | R,FUSE | 68 OHM 1/2W |
| ⚠R417 | AD302023 | R3X28A181J | R,METAL | 180 OHM 2W |
| ⚠R423 | BZ210165 | R3X18AR56J | R,METAL OXIDE | 0.56 OHM 2W |
| ⚠R429 | BZ210150 | R002T2010J | RC | 1 OHM 1/2W |
| ⚠R430 | AD301920 | R5X34F2R7J | R,CEMENT | 2.7 OHM 10W |
| ⚠R440 | AD301921 | R5X34F332J | R,CEMENT | 3.3K OHM 10W |
| ⚠R445 | BZ210104 | R6558A2R7J | R,FUSE | 2.7 OHM 2W |
| ⚠R454 | BZ210003 | R3K181102J | R,METAL OXIDE | 1K OHM 1W |
| ⚠R814 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R815 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R816 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R1701 | BZ210206 | R002T2155J | RC | 1.5M OHM 1/2W |
| ⚠R1702 | BZ210080 | R0G3K2275K | RC | 2.7M OHM 1/2W |
| ⚠R1706 | AD300651 | R002T4272J | RC | 2.7K OHM 1/4W |
| ⚠R1714 | BZ210248 | R3X181R15J | R,METAL OXIDE | 0.15 OHM 1W |
| ⚠R1717 | BZ210249 | R3X28A331J | R,METAL OXIDE | 330 OHM 2W |
| ⚠R1718 | BZ210031 | R5X2CE1R2J | R,CEMENT | 1.2 OHM 7W |
| ⚠R1720 | AE005735 | R63881R22J | R,FUSE | 0.22 OHM 1W |
| ⚠R3010 | AD302206 | R3X181180J | R,METAL OXIDE | 18 OHM 1W |
| ⚠R3021 | AE000147 | R3X181220J | R,METAL OXIDE | 22 OHM 1W |
| ⚠R3028 | BZ210204 | R3X1814R7J | R,METAL OXIDE | 4.7 OHM 1W |
| | | **CAPACITORS** | | |
| C005 | AE007076 | E02LF0102M | CE | 1000 UF 6.3V |
| C321 | BZ210176 | E02LF3222M | CE | 2200 UF 25V |
| ⚠C403 | BZ110195 | E02LU8220M | CE | 22 UF 100V |
| C404 | AE004798 | E61DFB470M | CE | 47 UF 160V |
| ⚠C408 | BZ210157 | P4N8FJ562H | CMPP | 0.0056UF 1.25KV |
| C412 | BZ210173 | P4J7F3474J | CMPP | 0.47 UF 250V PMS |
| ⚠C418 | AE007077 | P4G8FJ682H | CMPP | 0.0068UF 1.25KV PHE |
| ⚠C429 | AD301434 | E02LU4101M | CE | 100 UF 35V |
| ⚠C430 | BZ110101 | E5EZF3222M | CE | 2200 UF 25V |
| ⚠C434 | BZ110055 | E5EZF4102M | CE | 1000 UF 35V |
| ⚠C446 | BZ110225 | E5EZFD220M | CE | 22 UF 250V |
| C449 | BZ110202 | C0PLRR713K | CC | 0.001 UF 2KV R |
| C801 | AD301321 | CQG0CH412J | CC | 100 PF 50V CH |
| C820 | BZ110247 | C0JBB0713K | CC | 0.001 UF 2KV B |
| ⚠C1701 | BZ110025 | P2122B224M | CMP | 0.22 UF 275V ECQUL |
| C1705 | AE000699 | C0PLRR7S2K | CC | 560 PF 2KV R |
| C1707 | BZ110203 | C0PLRR7W2K | CC | 820 PF 2KV RR |
| ⚠C1708 | BZ110226 | C0JBB07H3K | CC | 0.0022UF 2KV B |
| ⚠C1710 | BZ110226 | C0JBB07H3K | CC | 0.0022UF 2KV B |
| ⚠C1711 | AE002878 | CD39E0MQ3M | CC | 0.0047UF 250V |
| ⚠C1714 | AE000700 | E52DHC681M | CE | 5 680 UF 200V |
| ⚠C1716 | BZ110010 | E02L03222M | CE | 2200 UF 25V |
| ⚠C1717 | BZ110055 | E5EZF4102M | CE | 1000 UF 35V |
| ⚠C1720 | AE006083 | E61DFB221M | CE | 220 UF 160V |
| ⚠C1728 | AE001253 | E02L01222M | CE | 2200 UF 10V |
| C1729 | AE000699 | C0PLRR7S2K | CC | 560 PF 2KV R |
| ⚠C1732 | BZ110078 | E02L03102M | CE | 1000 UF 25V |
| ⚠C1733 | AE000467 | E02LU54R7M | CE | 4.7 UF 50V |
| | | **DIODES** | | |
| D101 | AD301638 | 0010E00330 | INFRARED LED | LTE-3271T-012A-O |
| D102 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D103 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D105 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D106 | BZ410094 | D97U01501B | DIODE,ZENER | MTZJ15B T-77 |
| D108 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D402 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| D403 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D404 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D408 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D410 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D411 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| ⚠D412 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| D413 | BZ410019 | D97U03001B | DIODE,ZENER | MTZJ30B T-77 |
| D414 | BZ410019 | D97U03001B | DIODE,ZENER | MTZJ30B T-77 |
| ⚠D415 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | | Description |
|---|---|---|---|---|
| | | **DIODES** | | |
| D416 | BZ410085 | D2WXN40050 | DIODE,SILICON | 1N4005-EIC |
| D417 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D418 | BZ410037 | D97U03301B | DIODE,ZENER | MTZJ33B T-77 |
| D419 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D601 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D602 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D603 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D605 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D801 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D802 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D803 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D804 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D805 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D806 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1702 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1703 | AE000141 | D97U02R71B | DIODE,ZENER | MTZJ2.7B T-77 |
| ⚠D1704 | BZ410007 | D23TGP15J0 | DIODE,SILICON | RGP15J-G23 |
| ⚠D1705 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1706 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1707 | BZ410007 | D23TGP15J0 | DIODE,SILICON | RGP15J-G23 |
| D1709 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1710 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1711 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| D1712 | BZ410067 | D97U02R21B | DIODE,ZENER | MTZJ2.2B T-77 |
| ⚠D1713 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D1715 | AD300671 | D97U01801B | DIODE,ZENER | MTZJ18B T-77 |
| D1716 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| D1717 | AD300671 | D97U01801B | DIODE,ZENER | MTZJ18B T-77 |
| ⚠D1718 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| ⚠D1719 | BZ410115 | D2LKB340L0 | DIODE,SCHOTTKY | SB340L-6737 |
| D1720 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1721 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1722 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| ⚠D1723 | AD301980 | D2CF2016L0 | DIODE,SILICON | FE201-6L49 |
| D1724 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1726 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1727 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D1728 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1730 | AD301980 | D2CF2016L0 | DIODE,SILICON | FE201-6L49 |
| D1732 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D1733 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1734 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D2201 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D2205 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2206 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2207 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2303 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D2304 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D3001 | BZ410037 | D97U03301B | DIODE,ZENER | MTZJ33B T-77 |
| D3002 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D3003 | BZ410090 | D97U04R71B | DIODE,ZENER | MTZJ4.7B T-77 |
| D3004 | BZ410077 | D2WXSB1400 | DIODE,SCHOTTKY | SB140-EIC |
| D3005 | BZ410012 | D28TQS04N0 | DIODE,SCHOTTKY | 11EQS04N-TA1B2 |
| D3007 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D3008 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D3011 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D4001 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4002 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4003 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4004 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4005 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D4201 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D4204 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D4205 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D4207 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D5501 | BZ410012 | D28TQS04N0 | DIODE,SCHOTTKY | 11EQS04N-TA1B2 |
| D5502 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D8101 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D8111 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |
| D8112 | BZ410086 | DD7R0S3550 | DIODE,SILICON | 1SS355 TE-17 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **ICS** | | |
| IC101 | AE006547 | I51F58078A | IC | OEC8078A |
| IC103 | AD301641 | I9UF032310 | IC | PST3231NR |
| IC199 | AE007080 | A5T404Q015 | INIT DATA | BR24L04F-WE2 |
| IC302 | AD301983 | I01FF58910 | IC | AN5891SA-E1V |
| ⚠IC352 | AD302184 | I0FSP7522N | IC | AN7522N |
| ⚠IC401 | BZ611025 | I03TD80400 | IC | LA78040 |
| IC601 | AE004116 | I03FC319N0 | IC | LA76319NM-MPB-E |
| IC602 | AE000143 | I1KF98L100 | IC | KIA78L10F-RTF |
| IC1501 | AE006220 | I05FEA45FG | IC | TC90A45FG |
| IC1502 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC1504 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC1505 | AD301927 | I0UF015040 | IC | MM1504XNRE |
| ⚠IC1701 | AE002809 | 000220002W | PHOTO COUPLER | PS2561AL1-1-V(W) |
| ⚠IC1702 | AD302211 | I1KJ9A431A | IC | KIA431A-AT |
| IC2301 | AE003581 | I03F065650 | IC | LA6565-TE-L-E |
| IC2304 | AE005769 | I07J003580 | IC | BA10358FV-E2 |
| ⚠IC3001 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| ⚠IC3002 | AD301929 | I1KA78R090 | IC | KIA278R09PI |
| ⚠IC3003 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| IC3004 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| IC4001 | AE005760 | ICQK068620 | IC | ZR36862PQCG |
| IC4002 | AE005421 | I57J0L02F0 | IC | BR24L02F-WE2 |
| IC4003 | AE006061 | I07F9E00W0 | IC | BA33E00WHFP-TR |
| IC4007 | AE007082 | S5T403QF02 | MEMORY DATA | SST39VF800A-70-4C-EKE |
| IC4008 | AE006454 | IFLJ0622H6 | IC | K4S161622H-UC60 |
| IC4009 | AE006454 | IFLJ0622H6 | IC | K4S161622H-UC60 |
| IC4501 | BZ611095 | I03F3205M0 | IC | LA71205M-MPB |
| IC5501 | BZ611114 | I01F63FBP0 | IC | AN3663FBP |
| IC8001 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC8002 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC8004 | AE001295 | I0QJ045800 | IC | NJM4580M(TE1) |
| IC8102 | AE003584 | I17F017530 | IC | PCM1753DBQR |
| | | **TRANSISTORS** | | |
| Q101 | BZ410097 | 0000M00390 | PHOTO TRANSISTOR | ST-304L |
| Q102 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q103 | BZ410097 | 0000M00390 | PHOTO TRANSISTOR | ST-304L |
| Q104 | BZ410106 | 0002700680 | PHOTO COUPLER | RPI-352C40N |
| Q105 | BZ410106 | 0002700680 | PHOTO COUPLER | RPI-352C40N |
| Q106 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q107 | BZ410107 | 0002700690 | PHOTO COUPLER | RPI-303 |
| Q108 | BZ410107 | 0002700690 | PHOTO COUPLER | RPI-303 |
| Q110 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q112 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q114 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q116 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q350 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q401 | BZ510097 | TCAT03227Y | TRANSISTOR,SILICON | KTC3227_Y-AT |
| ⚠Q403 | BZ510040 | TDUU024990 | TRANSISTOR,SILICON | 2SD2499(LB0EC1) |
| ⚠Q406 | BZ510004 | TA3T016240 | TRANSISTOR,SILICON | 2SA1624-AA |
| Q407 | BZ510096 | TNATB03005 | COMPOUND TRANSISTOR | KRC102MAT |
| Q408 | BZ510087 | TCAT032070 | TRANSISTOR,SILICON | KTC3207-AT |
| Q409 | BZ510004 | TA3T016240 | TRANSISTOR,SILICON | 2SA1624-AA |
| Q601 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q602 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q605 | BZ510090 | TPAAB05001 | COMPOUND TRANSISTOR | KRA102SRTK |
| Q606 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q802 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q803 | BZ510100 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| ⚠Q804 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q805 | BZ510100 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| ⚠Q806 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q807 | BZ510100 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| Q1501 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1502 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1503 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1702 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| ⚠Q1705 | BZ510098 | T220033260 | FET | 2SK3326(2) |
| ⚠Q1706 | BZ510070 | TCAT032034 | TRANSISTOR,SILICON | KTC3203_Y-AT |
| Q2201 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q2202 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q2203 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **TRANSISTORS** | | |
| Q2301 | BZ510112 | T67J1036K0 | TRANSISTOR,SILICON | 2SA1036KT146 |
| Q2302 | AE003592 | T67J048TL0 | TRANSISTOR,SILICON | 2SA2048TL |
| Q2303 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q2304 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q2305 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q3001 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3002 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| ! Q3003 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3004 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3005 | AD301934 | TBA0013660 | TRANSISTOR,SILICON | KTB1366(O,Y) |
| Q3006 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3007 | BZ510057 | TAAT01281Y | TRANSISTOR,SILICON | KTA1281_Y |
| Q3008 | BZ510107 | TPAAA05001 | COMPOUND TRANSISTOR | KRA101SRTK |
| Q3009 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102SRTK |
| Q3010 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3011 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| ⚠Q3014 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3015 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4004 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4201 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4202 | BZ510072 | TPAAC05002 | COMPOUND TRANSISTOR | KRA103SRTK |
| Q4203 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4204 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q4210 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q4211 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4212 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q4501 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4502 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4503 | BZ510072 | TPAAC05002 | COMPOUND TRANSISTOR | KRA103SRTK |
| Q4504 | BZ510070 | TCAT032034 | TRANSISTOR,SILICON | KTC3203_Y-AT |
| Q4505 | BZ510073 | TAATA12660 | TRANSISTOR,SILICON | KTA1266-AT(Y,GR) |
| Q4506 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4507 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4509 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q4511 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q8002 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q8006 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q8007 | BZ510067 | TNAAC05002 | COMPOUND TRANSISTOR | KRC103SRTK |
| Q8101 | BZ510021 | TNYJC05001 | COMPOUND TRANSISTOR | DTC124EKAT146 |
| | | **COILS &TRANSFORMERS** | | |
| L001 | BZ310001 | 021673101J | COIL | 100 UH |
| L301 | BZ310005 | 02167D101K | COIL | 100 UH |
| L402 | BZ310063 | 022100027A | COIL,LINEARITY | ELH5L4113 |
| L403 | BZ310004 | 021679472K | COIL | 4.7 MH |
| L601 | BZ310041 | 02167F101J | COIL | 100 UH |
| L602 | BZ310005 | 02167D101K | COIL | 100 UH |
| L603 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L604 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L804 | BZ310005 | 02167D101K | COIL | 100 UH |
| L1501 | BZ310141 | 02167F100J | COIL | 10 UH |
| L1502 | BZ310043 | 021LA6150K | COIL | 15 UH |
| L1504 | BZ310170 | 021673151K | COIL | 150 UH |
| L1505 | BZ310042 | 021LA6101K | COIL | 100 UH |
| L1506 | BZ310042 | 021LA6101K | COIL | 100 UH |
| ⚠L1701 | AE003611 | 029X000116 | COIL,LINE FILTER | SS28V-R20130 |
| ⚠L1703 | BZ310066 | 028R200024 | COIL,DEGAUSS | 8R200024 |
| L1704 | AD301539 | 02AHB0A0A4 | CORE,FERRITE | W5T_20X10X10A |
| L3001 | AD301785 | 02167E100K | COIL | R6-1 10 UH |
| L4001 | BZ310191 | 02167F2R2J | COIL | 2.2 UH |
| L4002 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L4205 | BZ310041 | 02167F101J | COIL | 100 UH |
| L4502 | BZ310114 | 031626009R | COIL,BIAS OSC | 1626009 |
| L4504 | BZ310041 | 02167F101J | COIL | 100 UH |
| L4505 | BZ310040 | 02167F470J | COIL | 47 UH |
| L4506 | BZ310040 | 02167F470J | COIL | 47 UH |
| L4509 | BZ310005 | 02167D101K | COIL | 100 UH |
| L5501 | BZ310042 | 021LA6101K | COIL | 100 UH |
| L5502 | BZ310039 | 02167F220J | COIL | 22 UH |
| L5503 | BZ310039 | 02167F220J | COIL | 22 UH |
| L5504 | BZ310039 | 02167F220J | COIL | 22 UH |
| L8001 | BZ310041 | 02167F101J | COIL | 100 UH |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **COILS &TRANSFORMERS** | | |
| L8002 | BZ310042 | 021LA6101K | COIL | 100 UH |
| L8003 | BZ310041 | 02167F101J | COIL | 100 UH |
| L8102 | AE000828 | 02167F1R0K | COIL | 1 UH |
| L8103 | AE000828 | 02167F1R0K | COIL | 1 UH |
| L8104 | AE000828 | 02167F1R0K | COIL | 1 UH |
| T401 | BZ310172 | 045013003J | TRANS,HORIZONTAL DRIVE | ETH14Y47AY |
| ⚠T1701 | AD301935 | 048142065S | TRANSFORMER,SWITCHING | 8142065S |
| | | **JACKS** | | |
| ⚠J801 | AD301936 | 066F130021 | SOCKET,CATHODE RAY,TUBE | ISHS62S |
| ⚠J2201 | AE003431 | 060J131016 | HEADPHONE JACK | MSJ-2000_AG |
| J2202 | AE002949 | 060J421036 | RCA JACK | MTJ-032-05A-30-FE |
| J2203 | AE002950 | 060J421037 | RCA JACK | MTJ-032-05A-32-FE |
| J2204 | AE002951 | 060J421030 | RCA JACK | MTJ-032-05A-31-FE |
| J4201 | AE002759 | 060J431020 | RCA JACK | MSP-213V2-432_NI_LF |
| J4202 | AE002758 | 060J411031 | RCA JACK | MSP-213V1-432_NI_LF |
| J8007 | AE003568 | 060J401102 | RCA JACK | MSP-251V-05NI-FE-LF |
| | | **SWITCHES** | | |
| SW101 | BZ612016 | 0508S11001 | SWITCH (LEAF) | LSA-1144EAU |
| SW2201 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2202 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2203 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2204 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2205 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2206 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2207 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2251 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2252 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2253 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2254 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2255 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2256 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2257 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2258 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| | | **VARIABLE RESISTORS** | | |
| VR404 | BZ210218 | V1K63H3BTE | VOLUME,SEMI FIXED | NVG6TLTAB222 |
| VR1701 | AD301937 | V1K6314BTE | VOLUME,SEMI FIXED | NVG6TLTAB103 |
| | | **P.C.BOARD ASSEMBLIES** | | |
| PCB010 | AE007079 | A5T404Q010 | PCB ASS'Y | DME034A |
| PCB080 | AE007072 | A5T403Q080 | PCB ASS'Y | CME029A |
| PCB110 | AE007073 | A5T403Q110 | PCB ASS'Y | CCE024A |
| PCB130 | AE007081 | A5T404Q130 | PCB ASS'Y | DME031A |
| PCB270 | AE007075 | A5T403Q270 | PCB ASS'Y | CEE055A |
| | | **MISCELLANEOUS** | | |
| B401 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B402 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B403 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B1703 | BZ310129 | 024HT03564 | CORE,BEADS | W4BRH3.5X6X1.0 |
| B2201 | BZ310129 | 024HT03564 | CORE,BEADS | W4BRH3.5X6X1.0 |
| B2301 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2302 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2303 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2304 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B2305 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4001 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4002 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4003 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4005 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4006 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4007 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4008 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4009 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4010 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4011 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4012 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4013 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4014 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4016 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B4018 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| B8001 | BZ310122 | 024HT03563 | CORE,BEADS | W4BRH3.5X6X1.0X2 |
| B8103 | AE005476 | 0246C51024 | CORE,BEADS | MMZ1608R102CT |
| BL001 | BZ310014 | 023C00022A | COIL BALUN | HPN-01 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **MISCELLANEOUS** | | |
| BT001 | AE005640 | 141R004016 | BATTERY,MANGAN | GR03X-SP2 |
| BT002 | AE005640 | 141R004016 | BATTERY,MANGAN | GR03X-SP2 |
| CD002 | BZ614411 | 06CU011902 | CORD,CONNECTOR | CU011902 |
| CD303 | AE006531 | 06C3149004 | CORD,CONNECTOR | C3149004 |
| CD602 | AD302218 | 06CU291701 | CORD,CONNECTOR | CU291701 |
| CD603 | AE000133 | 06CU284501 | CORD,CONNECTOR | CU284501 |
| CD604 | AE000132 | 06CU282401 | CORD,CONNECTOR | CU282401 |
| CD802 | BZ614310 | WCL6844038 | FLAT CABLE AWM2468 A | WG26 5C GRAY 440MM |
| CD803 | AE005637 | 06CH823004 | CORD,CONNECTOR | CH823004 |
| CD805 | AE005637 | 06CH823004 | CORD,CONNECTOR | CH823004 |
| CD806 | AE007068 | 06CH013601 | CORD,EIS CONNECTOR | CH013601 |
| CD807 | AE007050 | 06CH012801 | CORD,EIS CONNECTOR | CH012801 |
| CD808 | AE006534 | 06CH011202 | CORD,EIS CONNECTOR | CH011202 |
| CP001 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP101 | BZ614289 | 06972C0010 | CONNECTOR PCB SIDE | TMC-J12P-B2 |
| CP303 | AD301045 | 069S140419 | CONNECTOR PCB SIDE | A2502WV2-4P |
| ⚠CP404 | BZ614303 | 069S450089 | CONNECTOR PCB SIDE | A1561WV2-A5P |
| CP601 | AD301943 | 069S240639 | CONNECTOR PCB SIDE | A2001WR2-4P |
| CP602 | BZ614462 | 067U009039 | WIRE HOLDER | B2013H02-9P |
| CP603 | AD301944 | 067U008029 | WIRE HOLDER | B2013H02-8P |
| CP604 | AD301796 | 069S280629 | CONNECTOR PCB SIDE | A2001WV2-8P |
| CP803 | BZ614269 | 069S320010 | CONNECTOR PCB SIDE | A2361WV2-2P |
| CP805 | BZ614269 | 069S320010 | CONNECTOR PCB SIDE | A2361WV2-2P |
| ⚠CD1702 | AE006538 | 1209415910 | CORD,AC BUSH | 9415910 |
| CD1705 | AE006535 | 06CH012403 | CORD,EIS CONNECTOR | CH012403 |
| CD2251 | AE006532 | 06C3220703 | CORD,CONNECTOR | C3220703 |
| CD4002 | AE005945 | 06C32B3303 | CORD,CONNECTOR | C32B3303 |
| CD4501 | BZ614373 | 122F061502 | CORD,JUMPER | 2F061502 |
| CD4503 | AE007029 | W9L6012042 | FLAT CABLE AWM2468 A | WG26 2C BLACK 120MM |
| CD8101 | AE000134 | 122H0C2204 | CORD,JUMPER | 2H0C2204 |
| CP1702 | AD301944 | 067U008029 | WIRE HOLDER | B2013H02-8P |
| ⚠CP1704 | BZ614283 | 069S420110 | CONNECTOR PCB SIDE | A1561WV2-2P |
| CP1707 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP1708 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP2201 | BZ614416 | 069S220629 | CONNECTOR PCB SIDE | A2001WV2-2P |
| CP2301 | AE003571 | 069GYOT119 | CONNECTOR PCB SIDE | 09-5000-024-001-001 |
| CP2302 | AE005934 | 069EV53030 | CONNECTOR PCB SIDE | 00_6232_005_006_800+ |
| CP2303 | AE005935 | 069EV63030 | CONNECTOR PCB SIDE | 00_6232_006_006_800+ |
| CP4501 | BZ614011 | 0697290620 | CONNECTOR PCB SIDE | TOC-C09X-A1 |
| CP4502 | BZ614050 | 069J760029 | CONNECTOR PCB SIDE | IMSA-9604S-06Z14 |
| CP4503 | AD301649 | 067U002019 | WIRE HOLDER | B2013H02-2P |
| CP602B | BZ614458 | 069S290629 | CONNECTOR PCB SIDE | A2001WV2-9P |
| CP603B | AD301796 | 069S280629 | CONNECTOR PCB SIDE | A2001WV2-8P |
| CP8001 | BZ614214 | 069S2B0629 | CONNECTOR PCB SIDE | A2001WV2-11P |
| CP8002 | AD301797 | 069J7C0029 | CONNECTOR PCB SIDE | IMSA-9604S-12Z14 |
| CP802A | BZ614276 | 067U005049 | WIRE HOLDER | B2013H02-5P |
| CP802B | BZ614276 | 067U005049 | WIRE HOLDER | B2013H02-5P |
| CP8101 | AE006053 | 069J7C0589 | CONNECTOR PCB SIDE | IMSA-9604S-12F |
| CUS011 | BZ710148 | 800WFAA007 | CUSHION B | |
| CUS012 | BZ710149 | 800WFAA008 | CUSHION C | |
| EL001 | BZ614044 | 124120301A | EYE LET | XRY20X30BD |
| EL002 | BZ614043 | 124116281A | EYE LET | XRY16X28BD |
| EL003 | BZ614044 | 124120301A | EYE LET | XRY20X30BD |
| EL004 | BZ614043 | 124116281A | EYE LET | XRY16X28BD |
| ⚠F1701 | BZ614422 | 081PC6R305 | FUSE | 51MS063L |
| ⚠FB401 | AE006458 | 043220059F | TRANSFORMER,FLYBACK | FJN20A003_M |
| FH1701 | AE002634 | 06710T0009 | HOLDER,FUSE | EYF-52BCY |
| FH1702 | AE002634 | 06710T0009 | HOLDER,FUSE | EYF-52BCY |
| OS2201 | AD301949 | 0773071003 | REMOTE RECEIVER | RPM7138-WH10 |
| ⚠RY1701 | AD300114 | 0560V20115 | RELAY | ALKS321 |
| ⚠SP351 | AE006459 | 070N546012 | SPEAKER | YDP4010-2 |
| ⚠SP352 | AE006459 | 070N546012 | SPEAKER | YDP4010-2 |
| TM101 | AE006991 | 076D0KH010 | TRANSMITTER | ORT204N7404360-U |
| ⚠TU001 | AE006069 | 0163300018 | RF UNIT | 115-V-KA35ARB |
| ⚠TH1701 | BZ410079 | DF5EL3R0A0 | DEGAUSS ELEMENT | ZPB45BL3R0A |
| ⚠V801 | AE007069 | 098S210461 | CRT W/DY | A51QDJ420X58 |
| X101 | BZ613006 | 100DA32R01 | CRYSTAL | DT-26 |
| X102 | BZ613033 | 100CT01403 | CRYSTAL | HC-49/U-S |
| X601 | AD301951 | 100CT3R532 | CRYSTAL | HC-49/U-S |
| X4001 | AD301803 | 100BT02701 | CRYSTAL | HC-49U/S |
| X4501 | BZ613017 | 100CT3R502 | CRYSTAL | HC-49/U |

# ELECTRICAL REPLACEMENT PARTS LIST

RESISTOR

| | |
|---|---|
| RC..... | CARBON RESISTOR |

CAPACITORS

| | |
|---|---|
| CC..... | CERAMIC CAPACITOR |
| CE..... | ALUMI ELECTROLYTIC CAPACITOR |
| CP..... | POLYESTER CAPACITOR |
| CPP..... | POLYPROPYLENE CAPACITOR |
| CPL..... | PLASTIC CAPACITOR |
| CMP..... | METAL POLYESTER CAPACITOR |
| CMPL..... | METAL PLASTIC CAPACITOR |
| CMPP..... | METAL POLYPROPYLENE CAPACITOR |

**TOSHIBA CORPORATION**
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